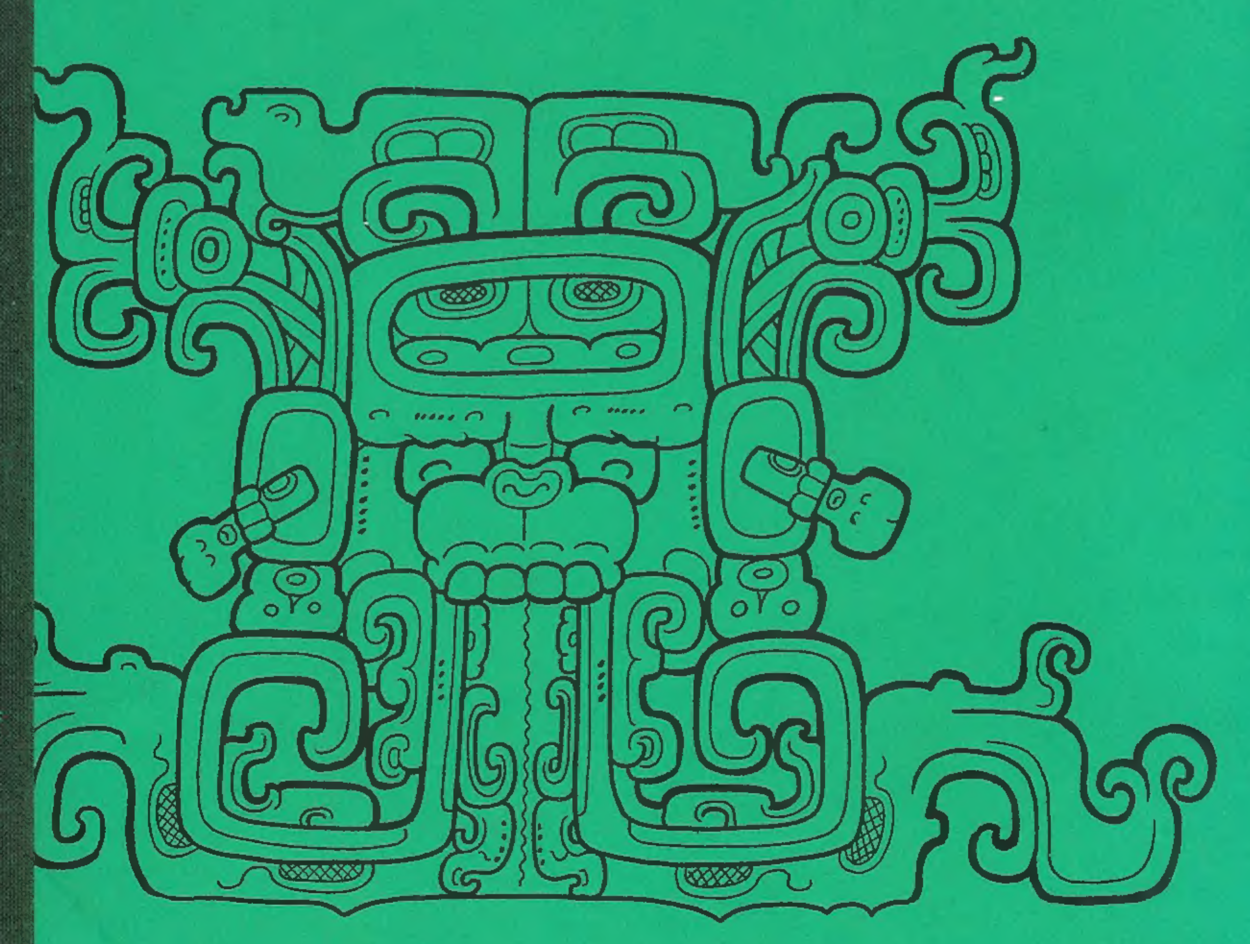
SOURCEBOOK THE XXXI MAYA MEETINGS

March 9 - 14, 2007

Inscriptions of the River Cities

Yaxchilan, Piedras Negras and Pomona



Mesoamerica Center
Department of Art and Art History
University of Texas at Austin



SOURCEBOOK THE XXXI MAYA MEETINGS

March 9 - 14, 2007

Inscriptions of the River Cities

Yaxchilan, Piedras Negras and Pomona



Mesoamerica Center
Department of Art and Art History
University of Texas at Austin

Acknowledgments

Preparations for each Maya Meetings involve so many people, all of whom deserve our deepest thanks and appreciation. Last year Steve Houston suggested the idea of a conference on the "River of Ruins," seeing the clear need to process and discuss the large amount of archaeological work recently done in the Usumacinta area. Its timeliness comes too from the role the river plays today as a backdrop for many of the social, political and economic tensions now facing Mexico and Guatemala. Few places in Latin America better demonstrate what is at stake when war and demographic change run up against issues of environmental and archaeological preservation. Our conference won't begin to address these complexities, but I appreciate the input of Steve and so many who help shift our focus to this fascinating area once again.

Many of our speakers have devoted large parts of their careers to the study and support of the Usumacinta River and its archaeology. Armando Anaya Hernandez Charles Golden, Steve Houston, Peter Mathews, Jon McGee Mary Miller, Joel Palka, Carlos Pallán, Megan O'Neil, David Pentecost and Marc Zender have all conducting important research and fieldwork in the region, and their presence in Austin to share and discuss their ideas is so appreciated. As always, the Maya Meetings also strive to touch on the latest important finds and scholarship no matter where they are made in the Maya region, and we extend special thanks to Simon Martin, Karl Taube, Fred Valdez, and Verónica Vázquez López for coming to present their new and exciting research and discoveries.

The sourcebook you are holding was made possible through the help of several people. I would especially like to thank Roberto García Moll for his generosity in allowing us to reproduce drawings made under the auspices the Proyecto Arqueológico Pomona. Peter Mathews provided many of these drawings, all superb in their accuracy and clarity. Ian Graham's handiwork is everywhere, of course, and Maya archaeology is forever grateful for his efforts and artistry. Barbara Fash, Donna Dickerson and Helen Najarian of Harvard's Peabody Museum provided great help in securing permissions to reproduce drawings by Ian and others of the Corpus of Maya Hieroglyphic Inscriptions (CMHI) project. My students Nick Carter, Elaine Schele, Danny Law and Amanda Garbee offered a good deal of help with the production, for which I am thankful.

Here at UT, department chair John Yancey and Deans Doug Dempster and Ken Hale of the College of Fine Arts have been constant in their generous support of the Maya Meetings.

Workshop leaders this year deserve recognition for their hard work: Erik Boot, Bruce Love, Peter Mathews, Barbara McCloud, Alexander Tokovinine, Justin Kerr, John Pohl, Robert Williams, Erik Velasquez García, and Marc Zender.

Other valuable supporters of the meetings and of UT's Mesoamerica Center include Barbara Arroyo, Jose Barroso, Karl Calloway, Michael Charlesworth, Frank and Ellen Donnelly, Sue Glenn, Lucia Herrera, Ron Jameson, Mary Katherine, Sarah Murrin, Bill and Bettye Nowlin, Carolyn Porter, Irene Roderick, Kent Reilly, Deb Sayre, Joel Skidmore, Ann Stuart, George Stuart, Leigh Taylor, Amanda Venable, and Bill Wheless,

To all of the energetic students and volunteers who have contributed to the meetings, I extend my heartfelt thanks and appreciation.

And once again, my immense thanks go to Michael Scanlon, who again made it all happen.

- David Stuart



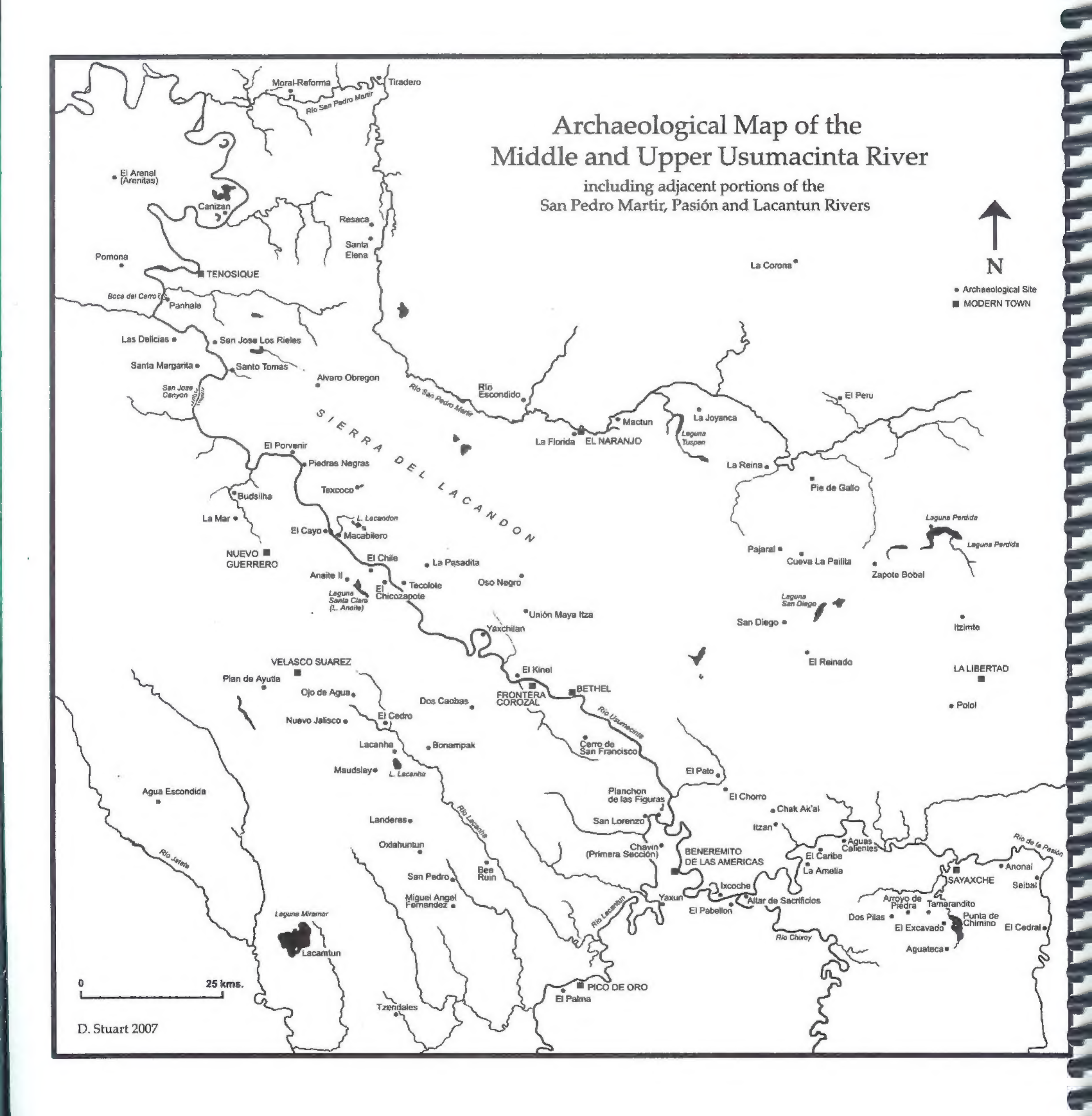
The 2007 Maya Meetings are dedicated
in lasting memory and appreciation to

Kathryn Josserand

1942-2006

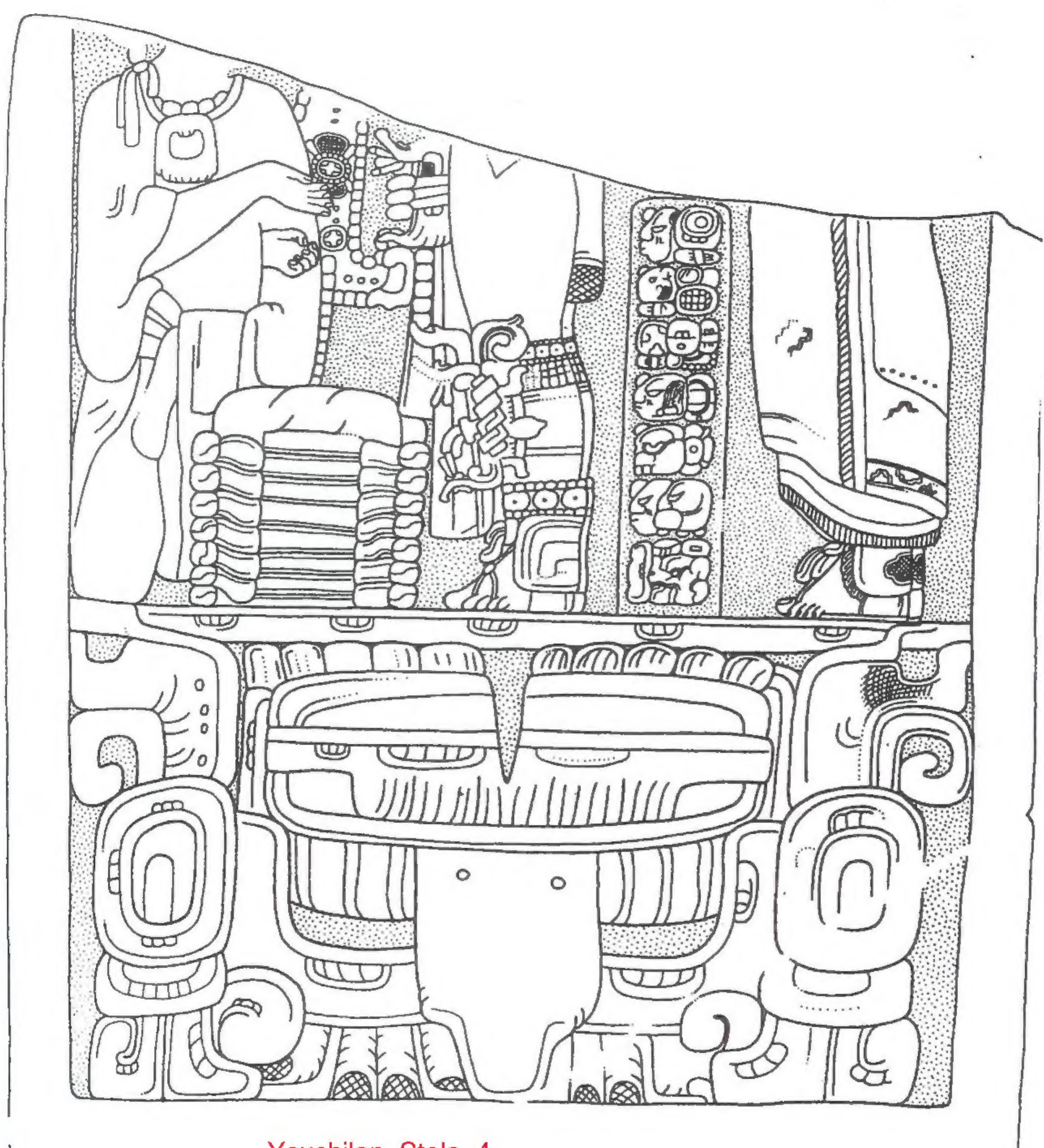
scholar and friend




Archaeological Map of the
Middle and Upper Usumacinta River
including adjacent portions of the
San Pedro Martir, Pasión and Lacantun Rivers
N
Archaeological Site
MODERN TOWN
Moral-Reforma
Tiradero
Rio San Pedro Martir
El Arenal (Arenitas)
Canizan
Resaca
Santa Elena
Pomona
TENOSIQUE
La Corona
Boca del Cerro
Panhale
Las Delicias
San Jose Los Rieles
Santa Margarita
Santo Tomas
San Jose Canyon
Alvaro Obregon
Rio San Pedro Martir
Rio Escondido
El Peru
Mactun
La Joyanca
La Florida
EL NARANJO
Laguna Tuspan
SIERRA DEL LACANDON
El Porvenir
Piedras Negras
La Reina
Pie de Gallo
Texcoco
Budsilha
La Mar
L. Lacandon
El Cayo
Macabilero
Laguna Perdida
NUEVO GUERRERO
El Chile
La Pasadita
Pajaral
Cueva La Pailita
Zapote Bobal
Anaite II
Tecolote
Oso Negro
El Chicozapote
Laguna Santa Clara (L. Anaite)
Laguna San Diego
Unión Maya Itza
San Diego
Itzimte
Yaxchilan
El Reinado
VELASCO SUAREZ
Plan de Ayutla
El Kinel
LA LIBERTAD
Ojo de Agua
FRONTERA COROZAL
BETHEL
Dos Caobas
Polol
El Cedro
Nuevo Jalisco
Rio Usumacinta
Lacanha
Bonampak
Cerro de San Francisco
Maudslay
L. Lacanha
El Pato
Agua Escondida
Planchon de las Figuras
El Chorro
Chak Ak'al
Landeres
San Lorenzo
Itzan
Rio Lacanha
Oxlahuntun
Chavin (Primera Sección)
BENEREMITO DE LAS AMERICAS
Aguas Calientes
Rio de la Pasión
El Caribe
La Amelia
Anonal
Rio Jatate
San Pedro
Bee Ruin
SAYAXCHE
Seibal
Ixcoche
Miguel Angel Fernandez
Yaxun
Altar de Sacrificios
Arroyo de Piedra
Tamarandito
El Pabellon
Rio Lacantun
Dos Pilas
Punta de Chimino
Laguna Miramar
El Excavado
El Cedral
Rio Chixoy
Lacamtun
Aguateca
0
25 kms.
PICO DE ORO
El Palma
Tzendales
D. Stuart 2007

Selected Inscriptions of Yaxchilan and vacinity

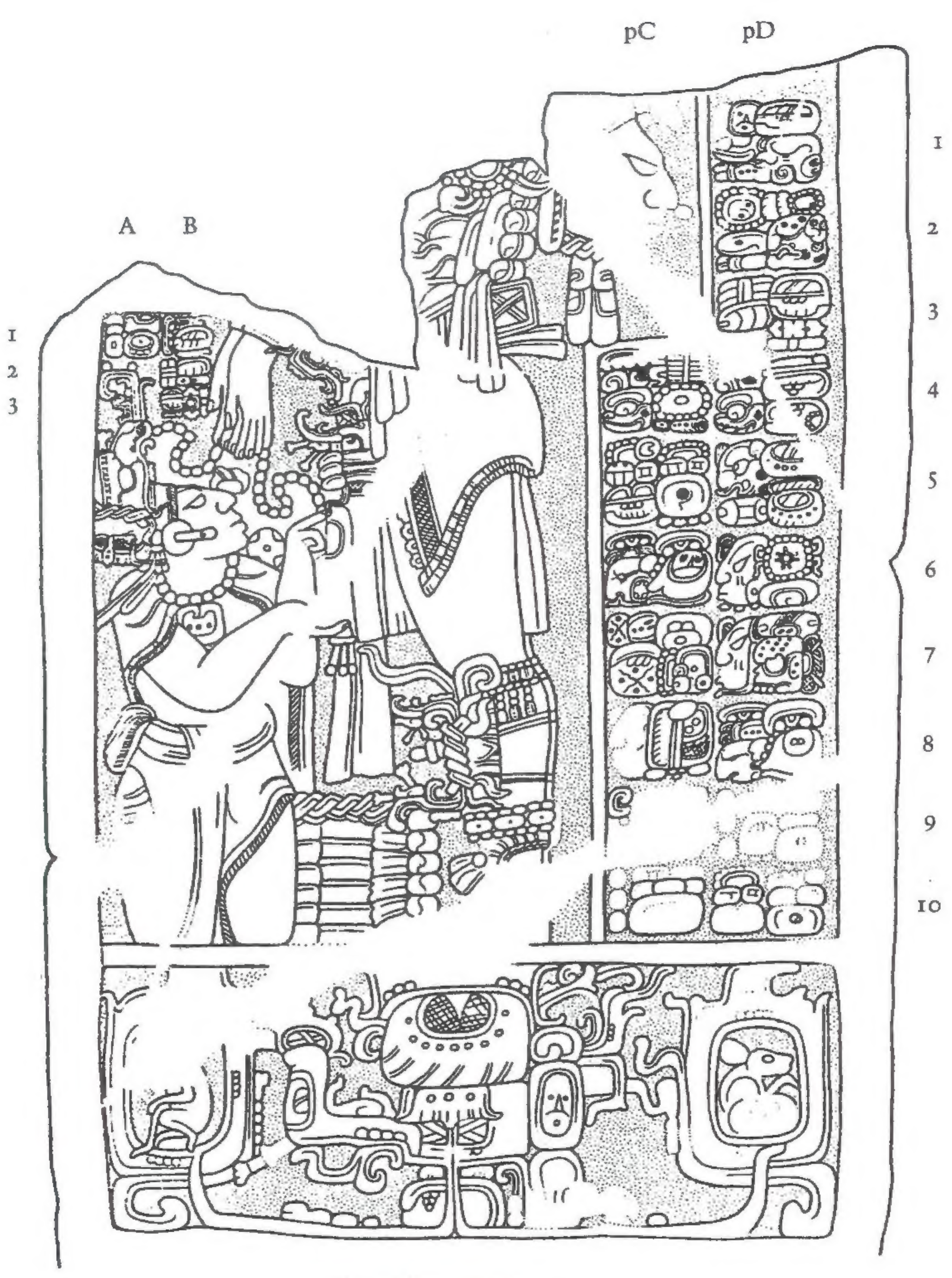




Yaxchilan Stela 4

Stela 4

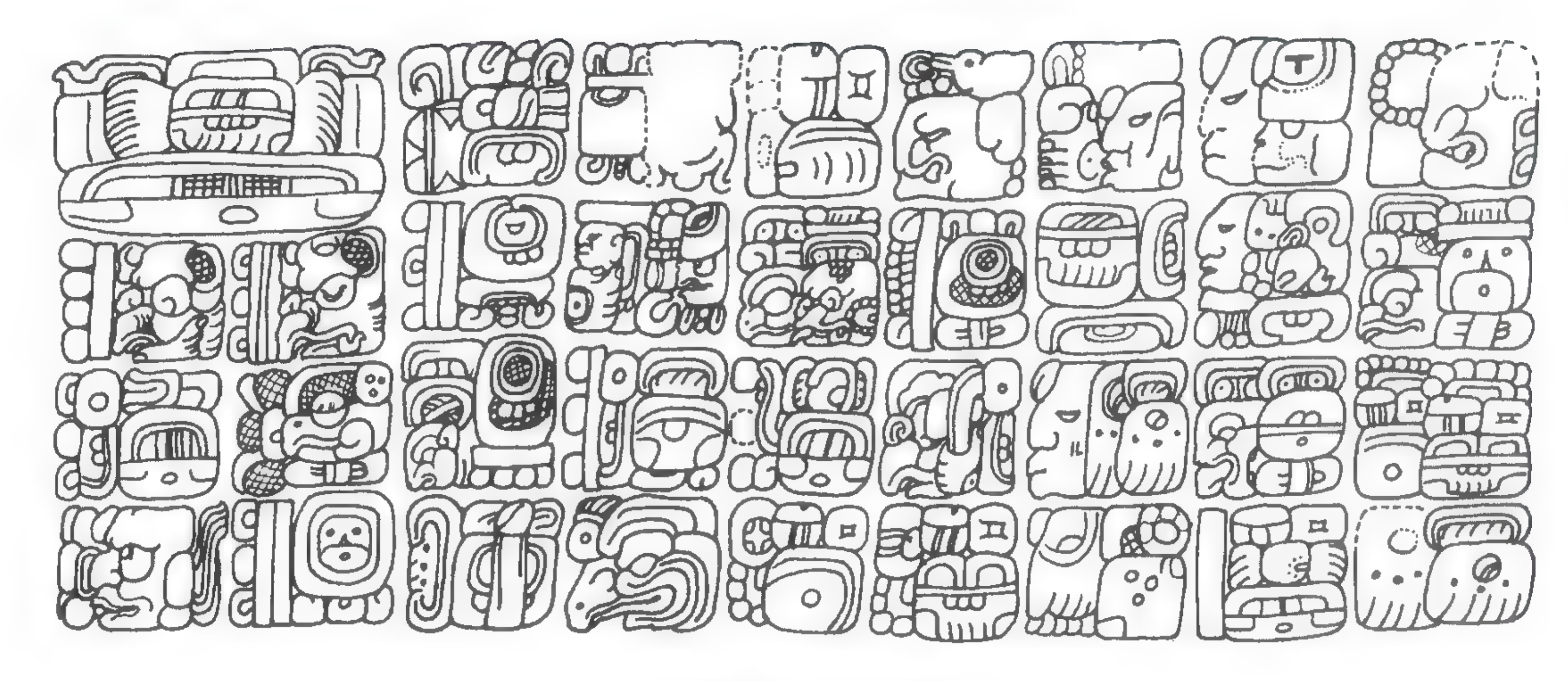
Drawing by David Stuart



Yaxchilan Stela 7

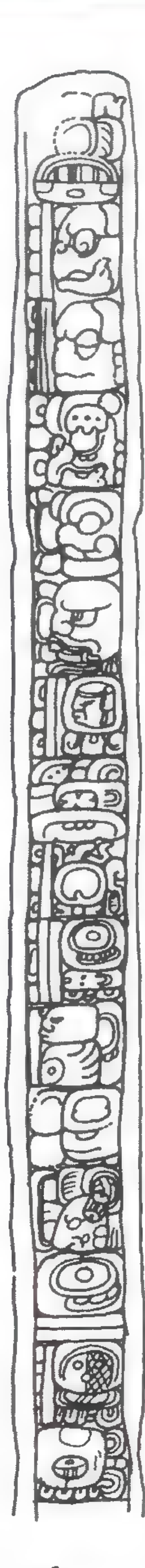
Stela 7, back

Drawing by Ian Graham, CMHI
(From Tate 1992:Fig.89)



Stela 11, base panel

Drawing by Linda Schele





Stela 11
sides

Drawings by Linda Schele

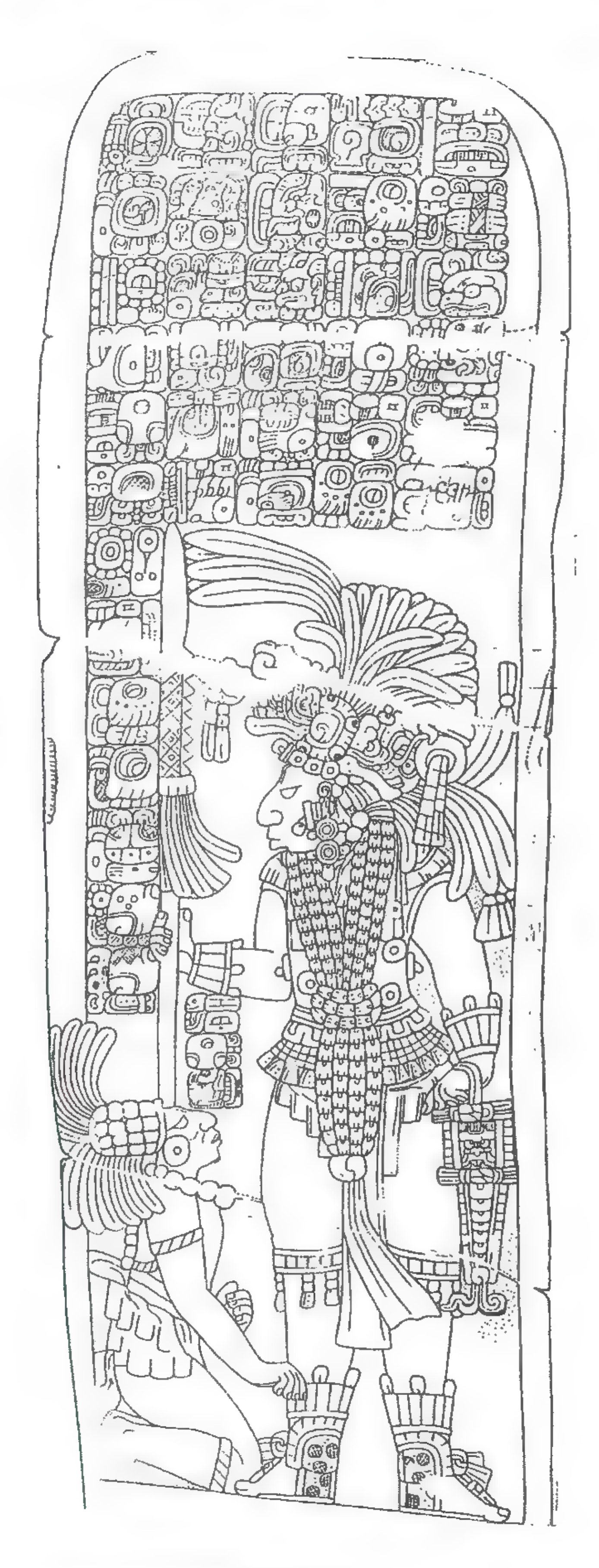






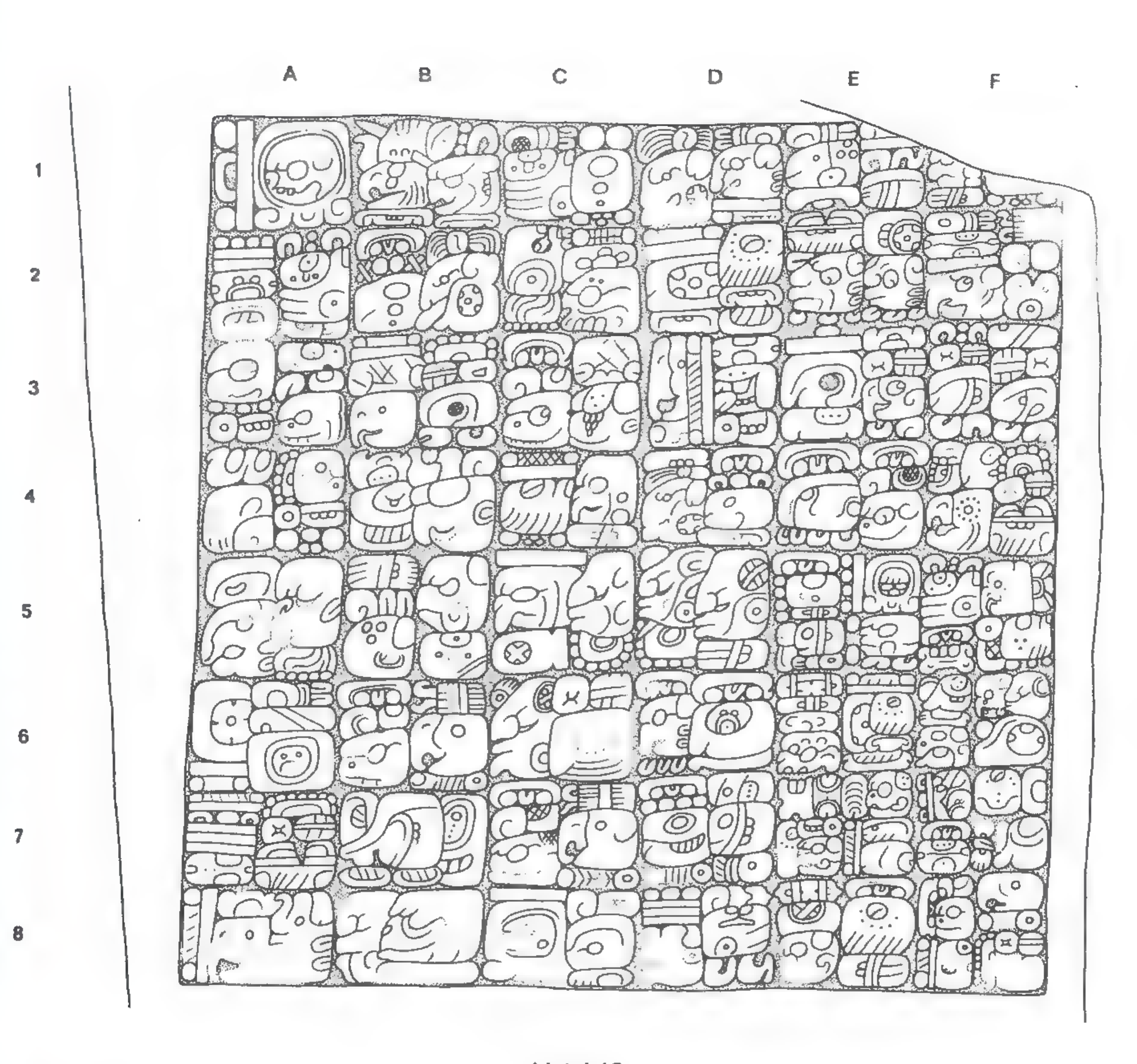
Stela 12, upper texts

Drawings by Linda Schele



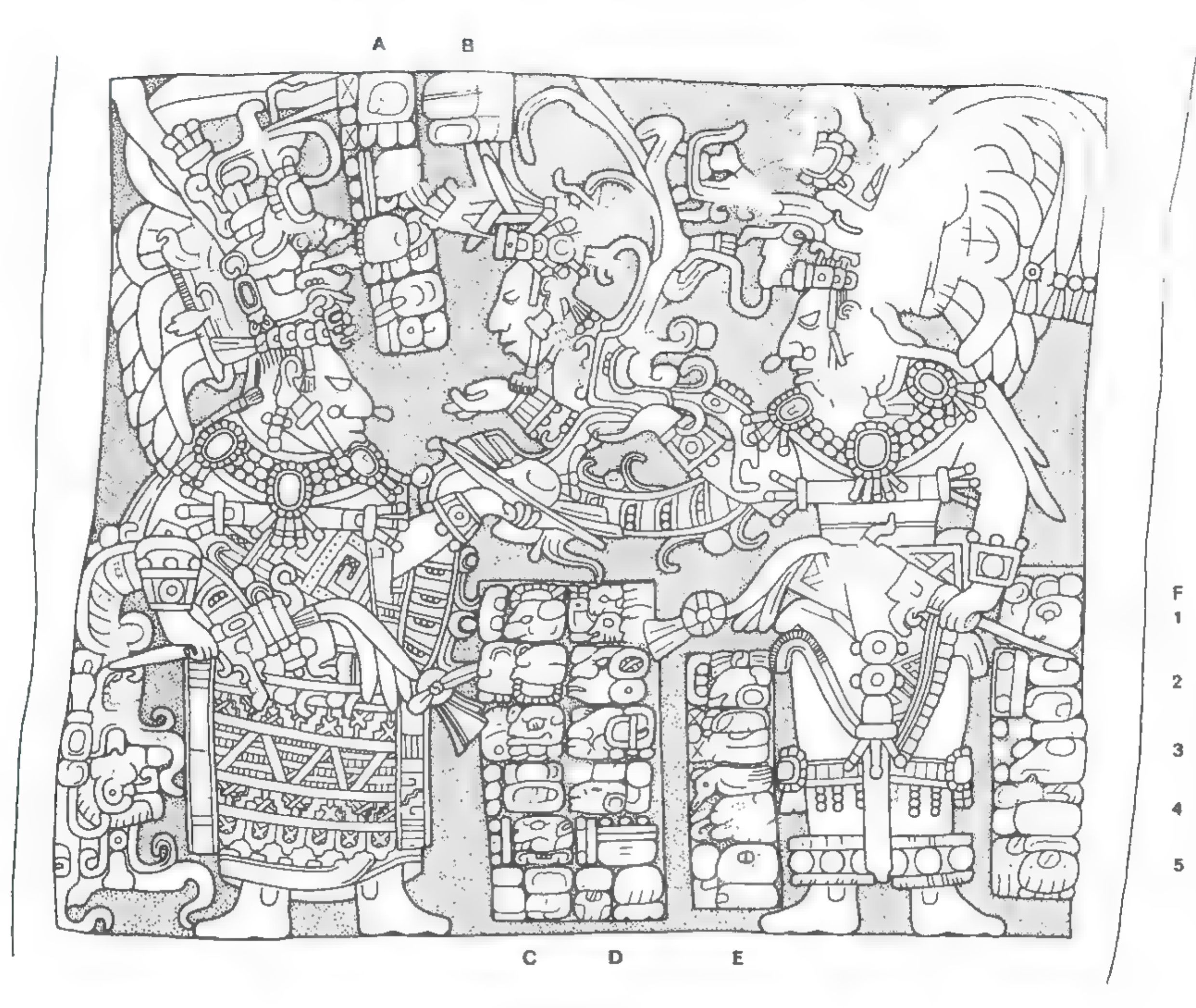
Stela 18

Drawing by Peter Mathews



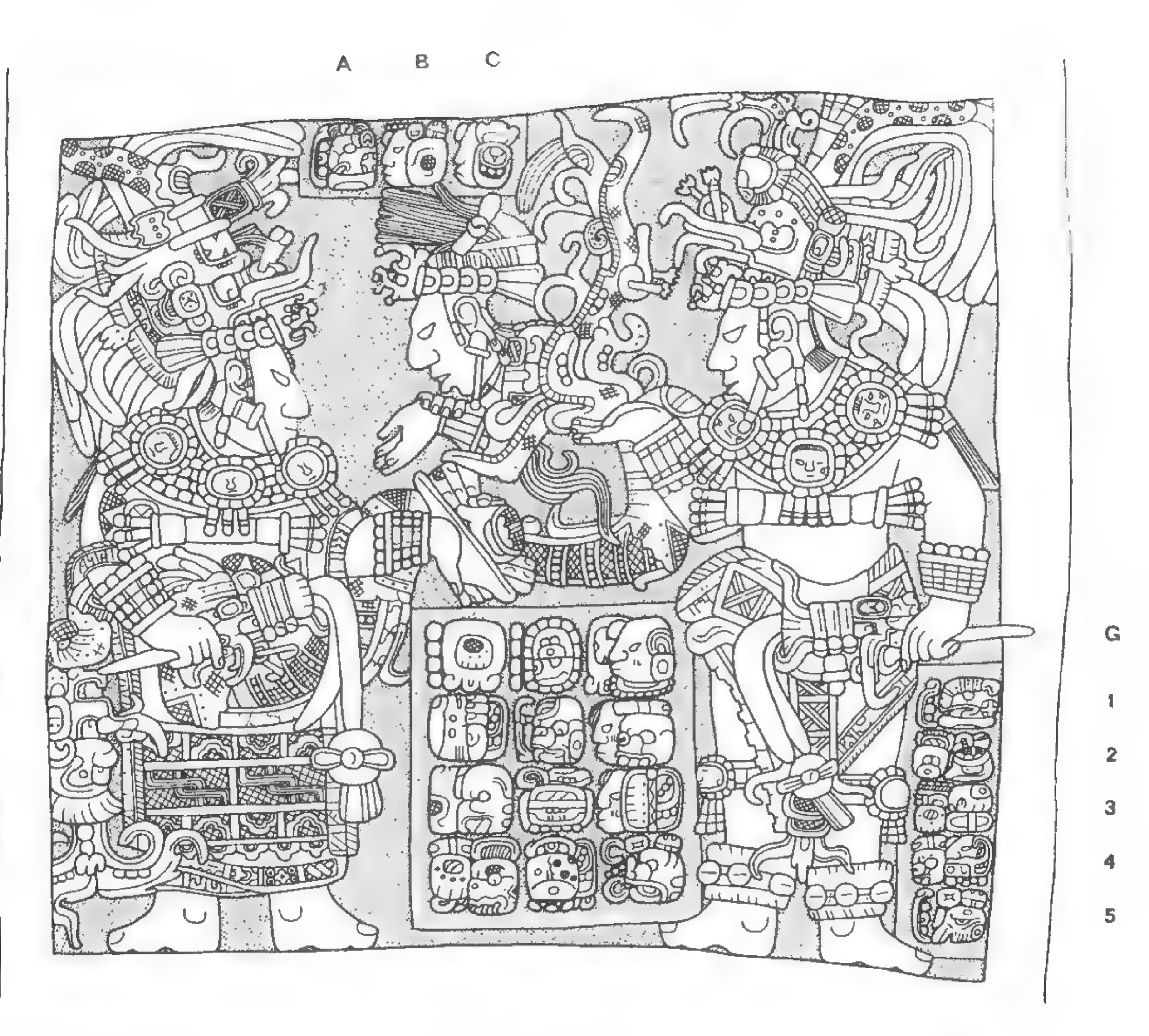
Lintel 10

Drawing by Ian Graham, CMHI



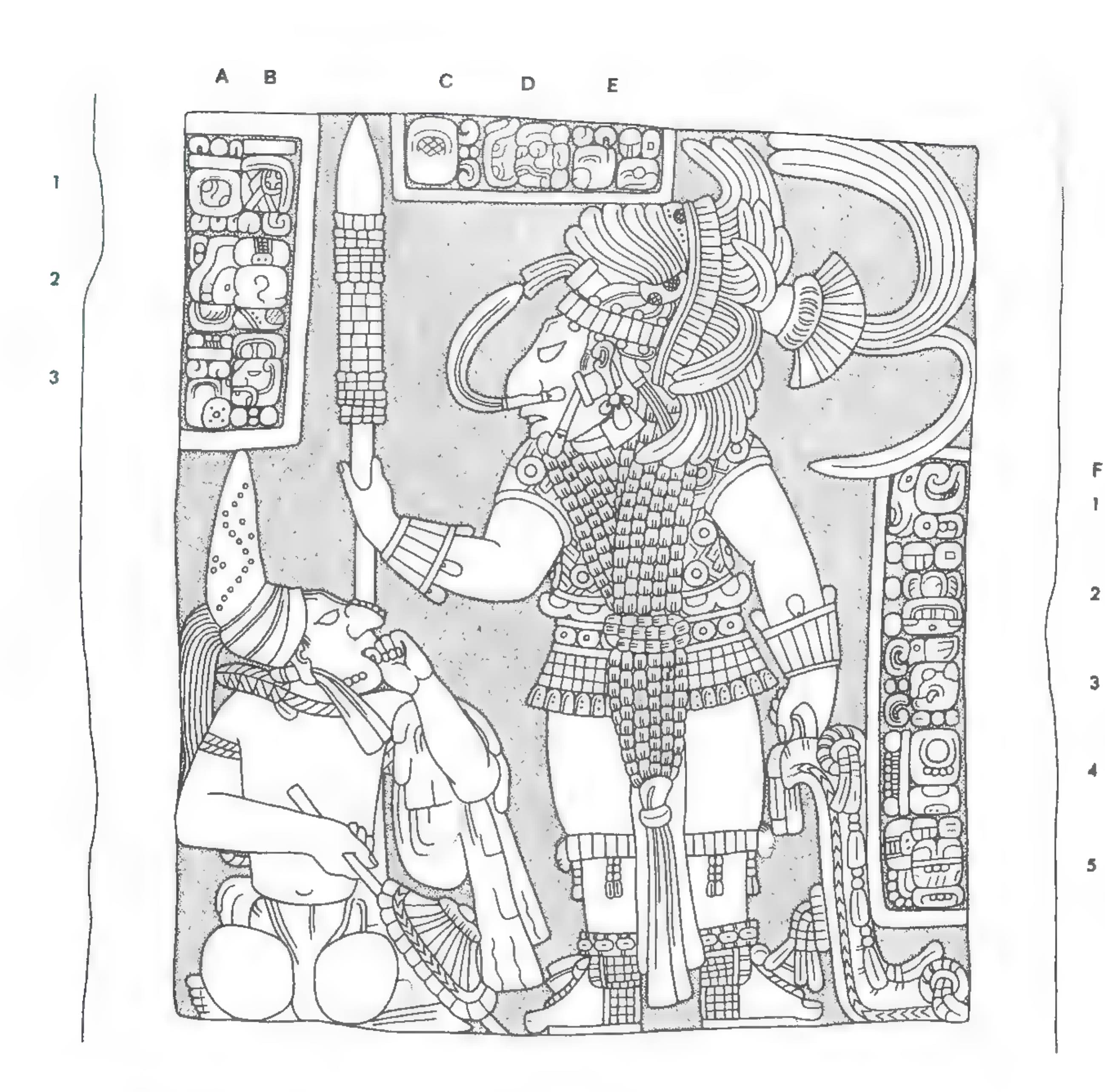
Lintel 13

Drawing by Ian Graham, CMHI



Lintel 14

Drawing by Ian Graham, CMHI



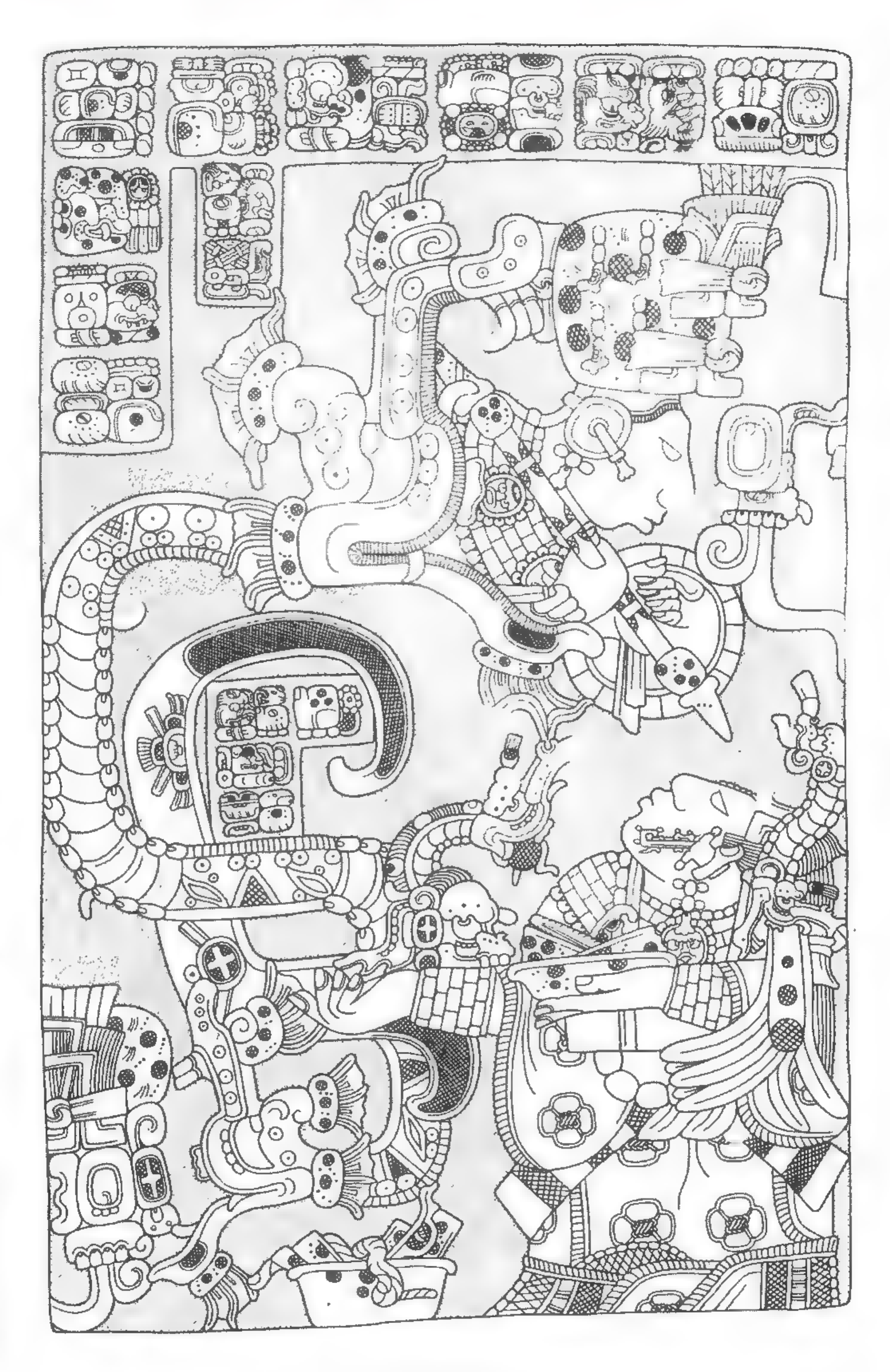
Lintel 16

Drawing by Ian Graham, CMHI

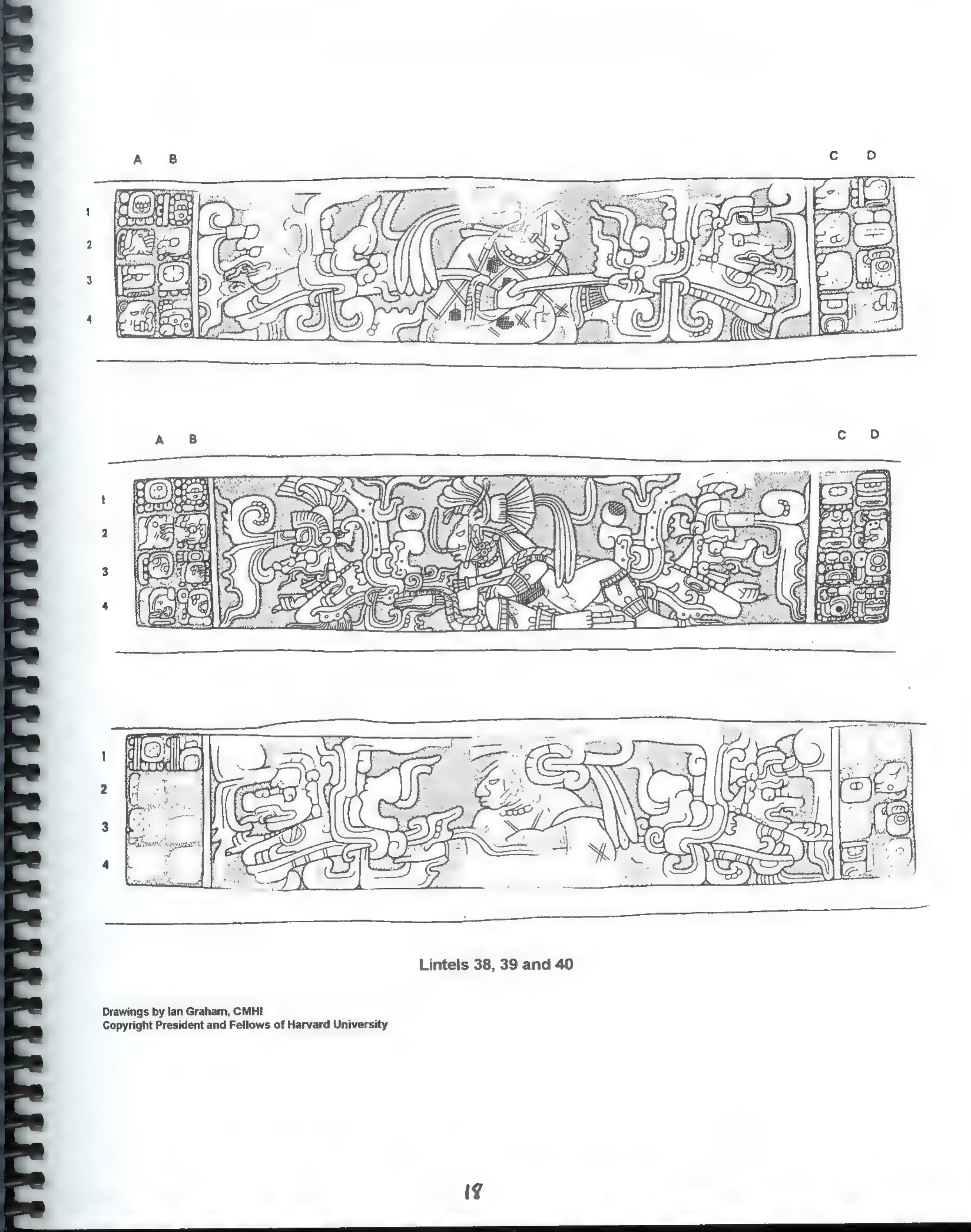


Lintel 24

Drawing by Ian Graham, CMHI

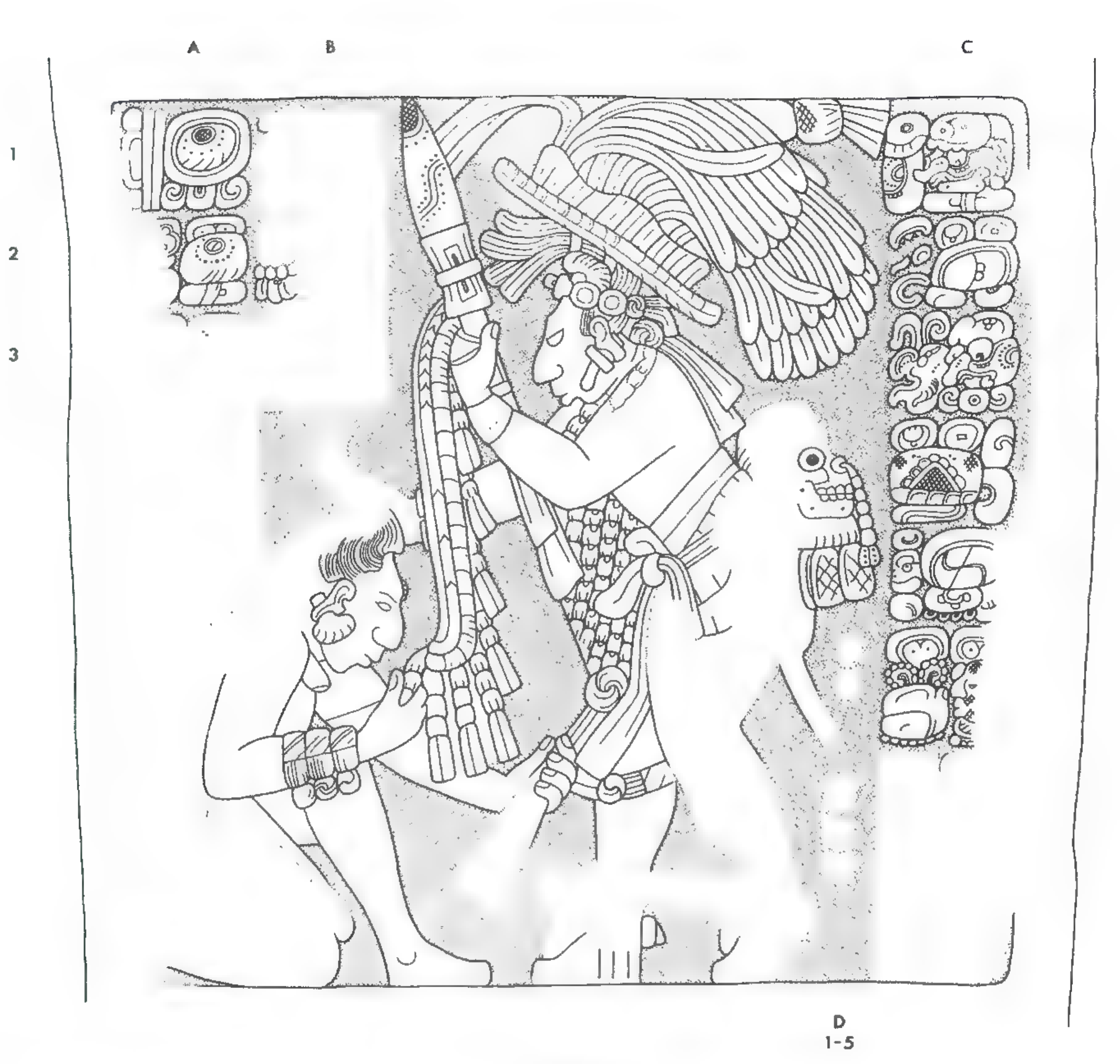


Lintel 25



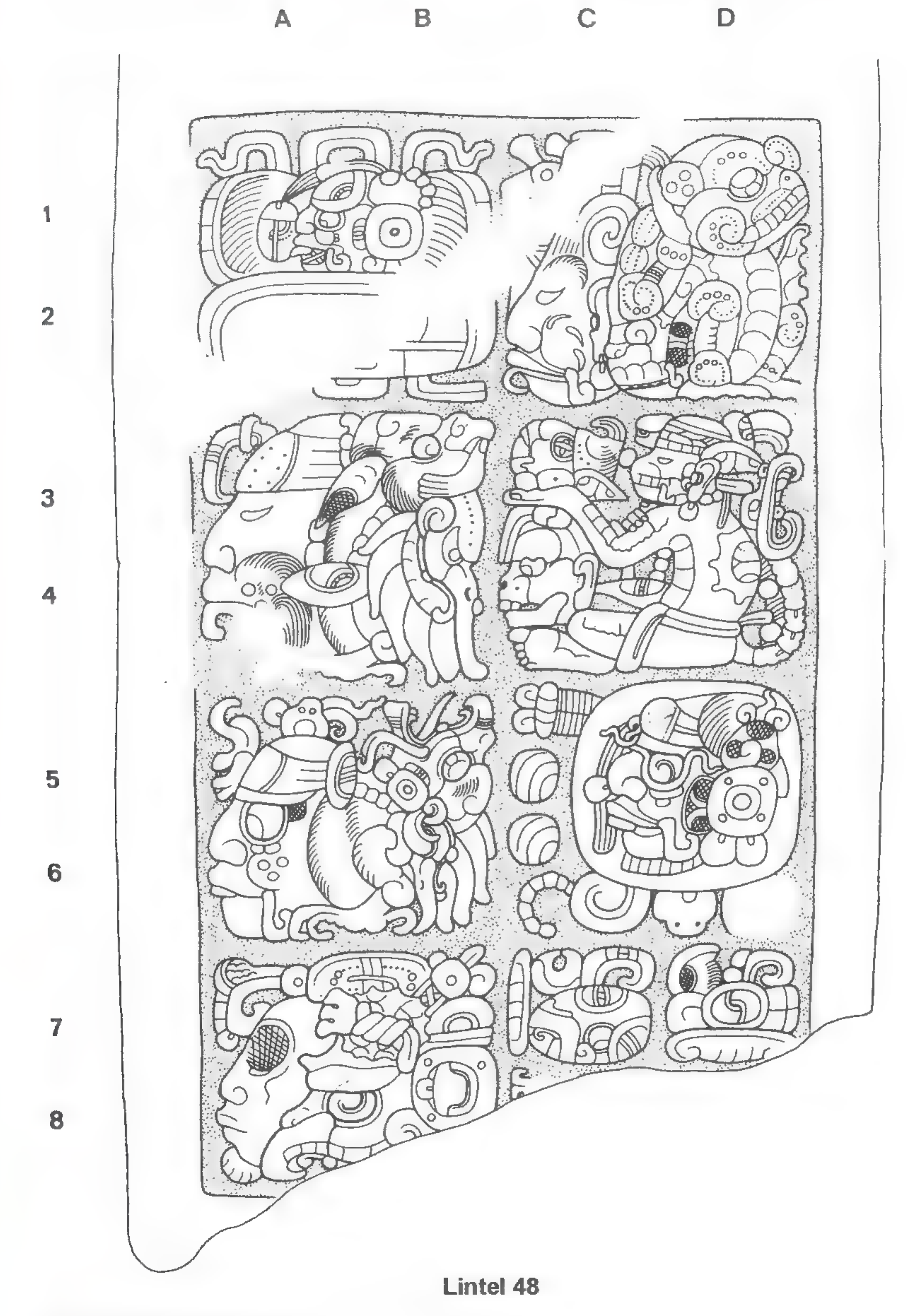
Lintels 38, 39 and 40

Drawings by Ian Graham, CMHI



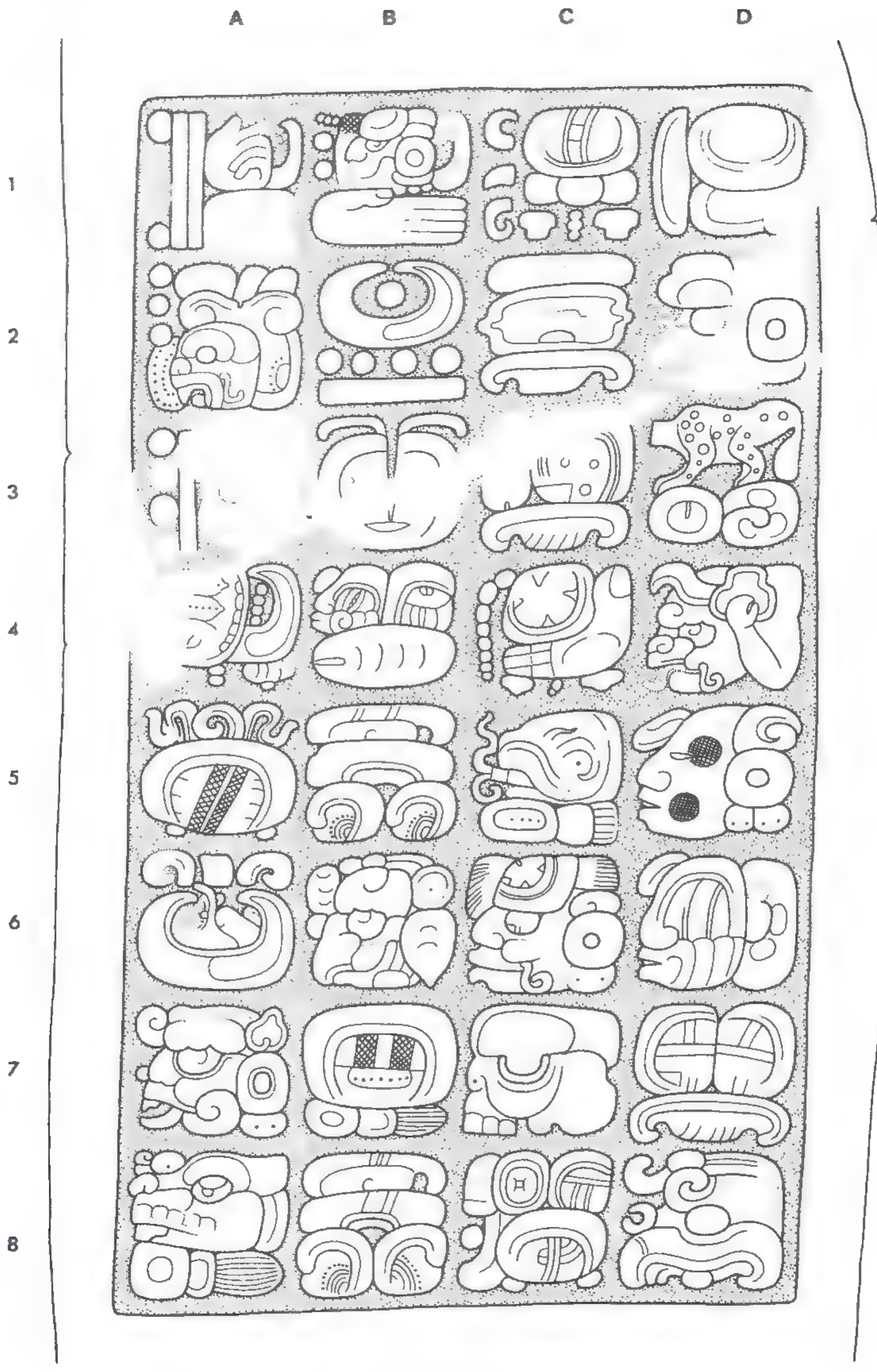
Lintel 45

Drawing by Ian Graham, CMHI



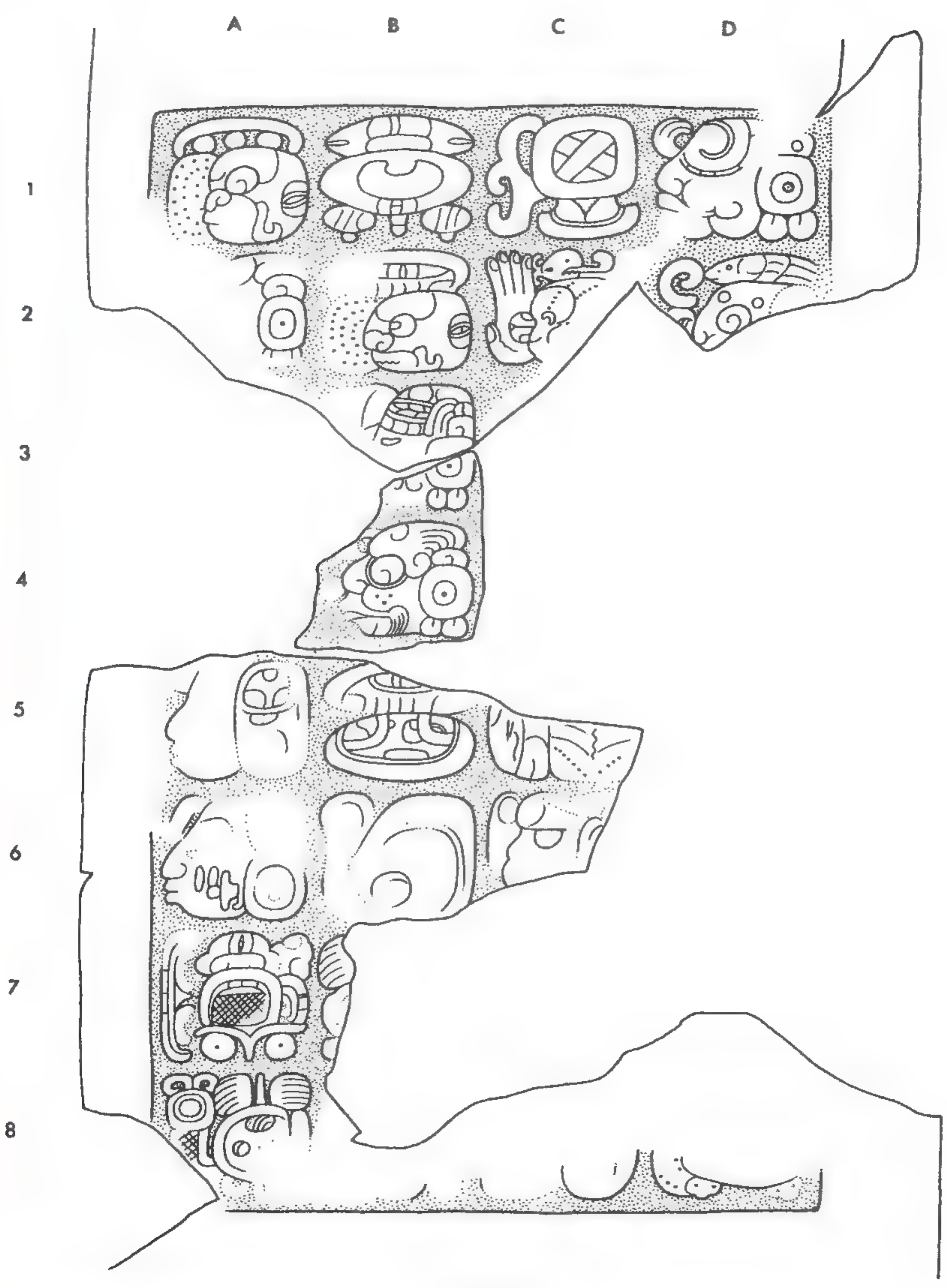
Lintel 48

Drawing by Ian Graham, CMHI



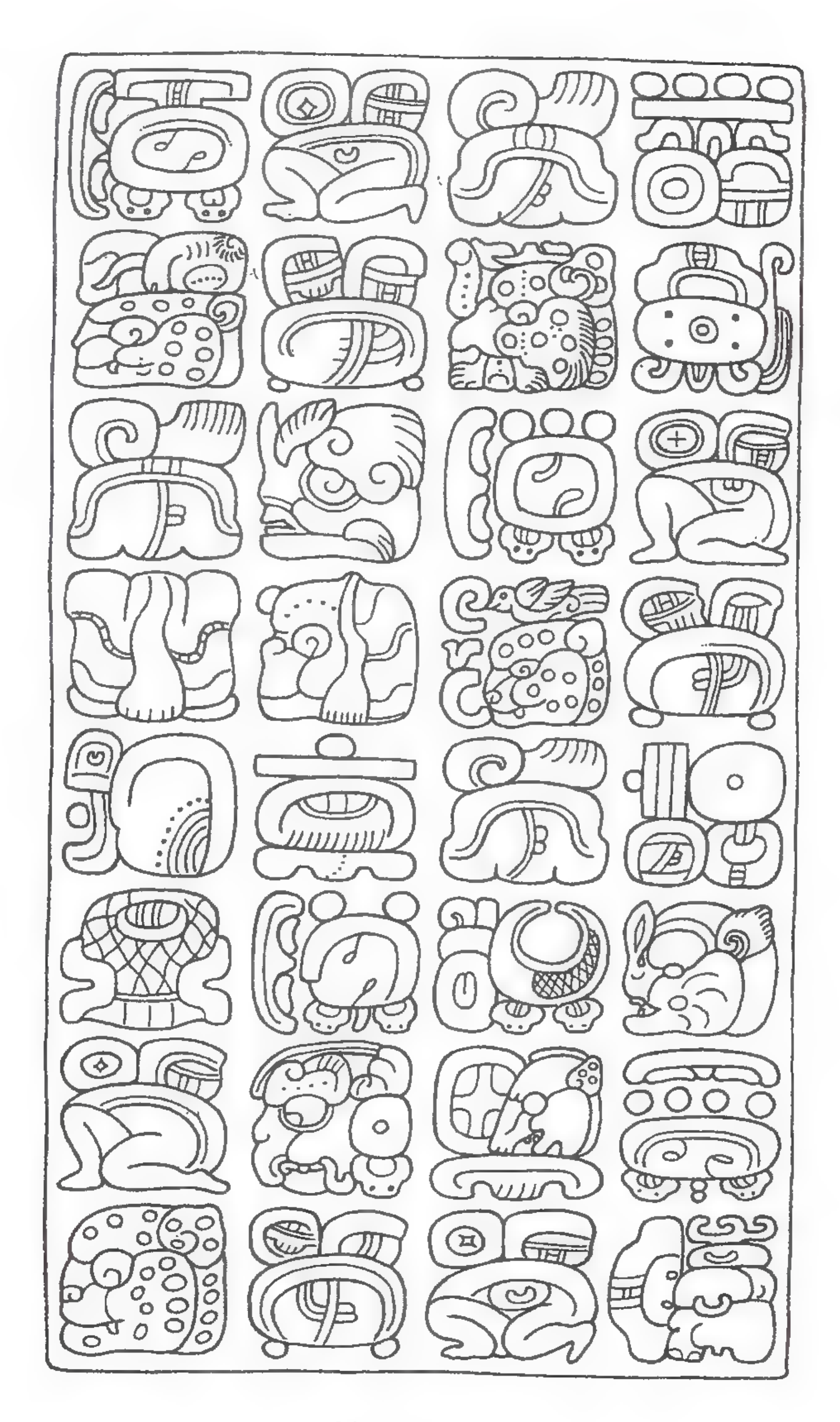
Lintel 47

Drawing by Ian Graham, CMHI



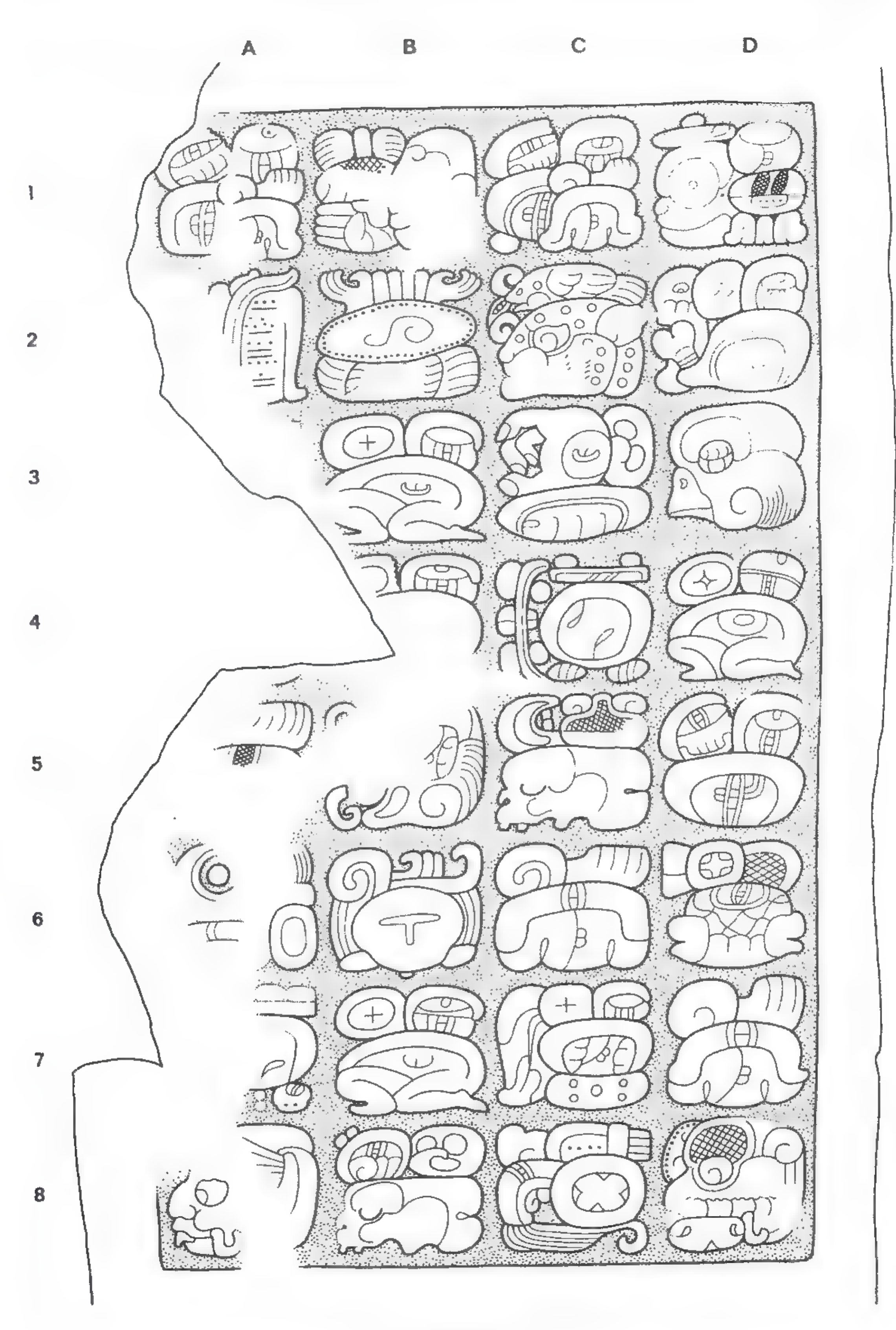
Lintel 34

Drawing by Ian Graham, CMHI



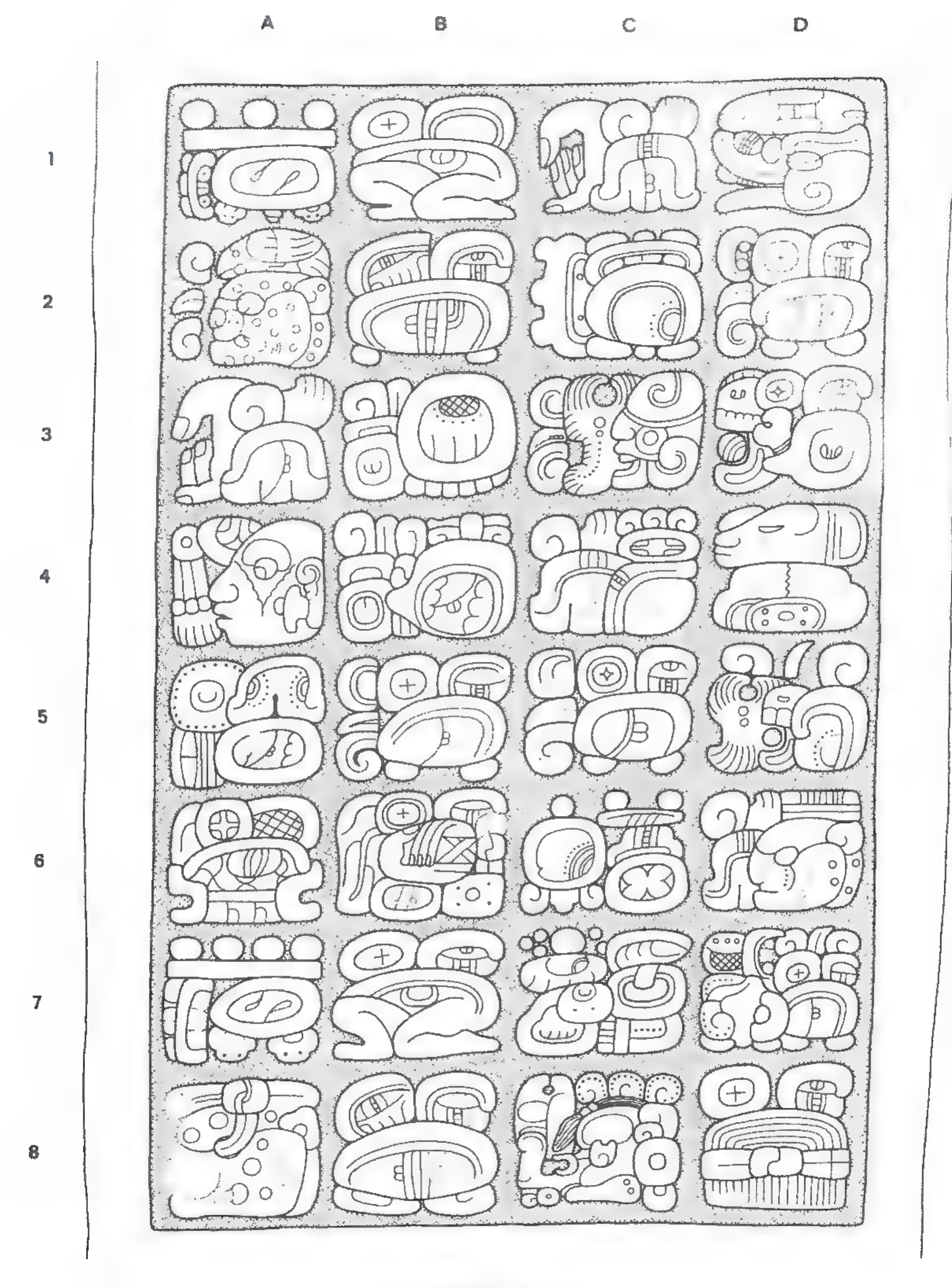
Lintel 11

Drawing by David Stuart



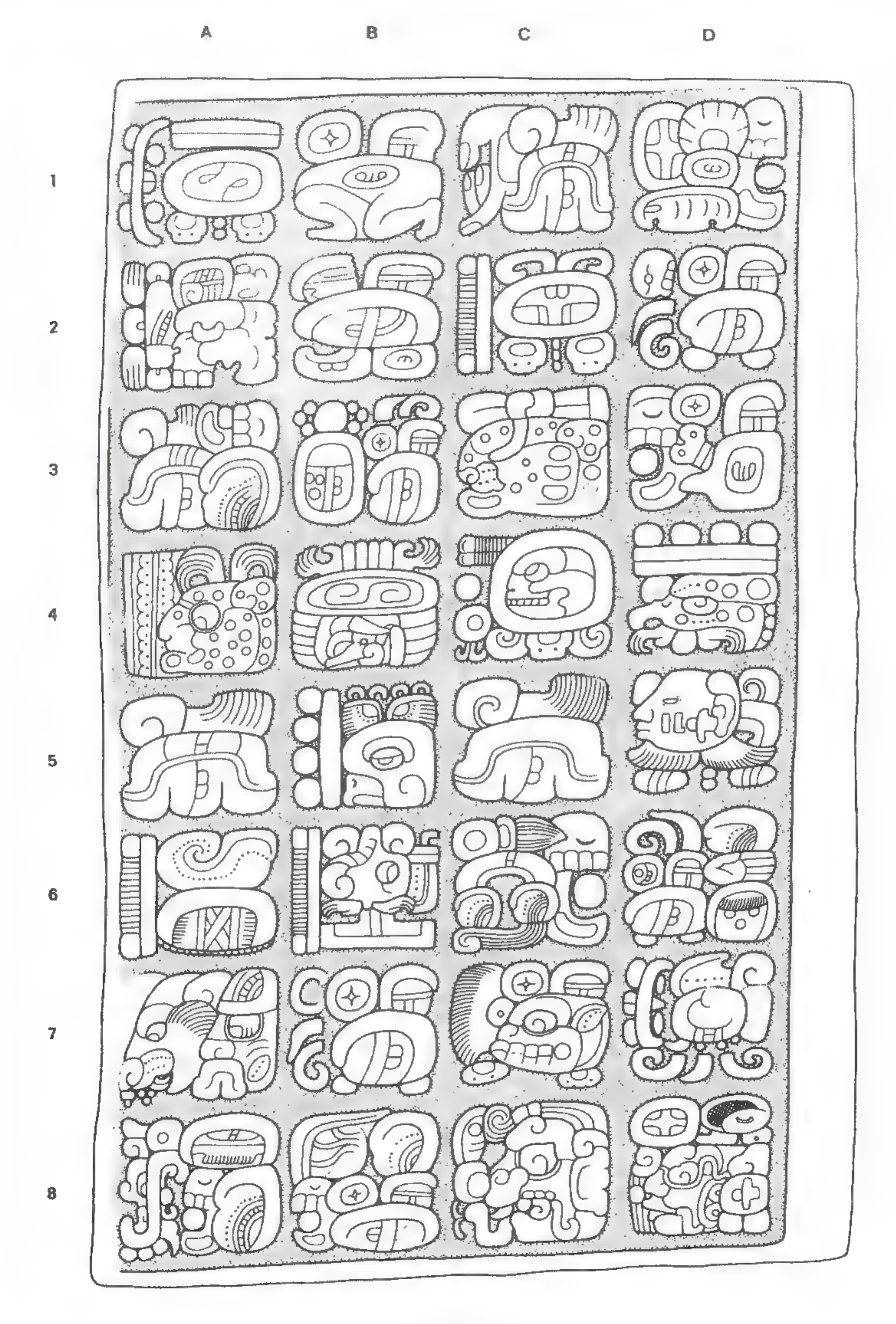
Lintel 49

Drawing by Ian Graham, CMHI



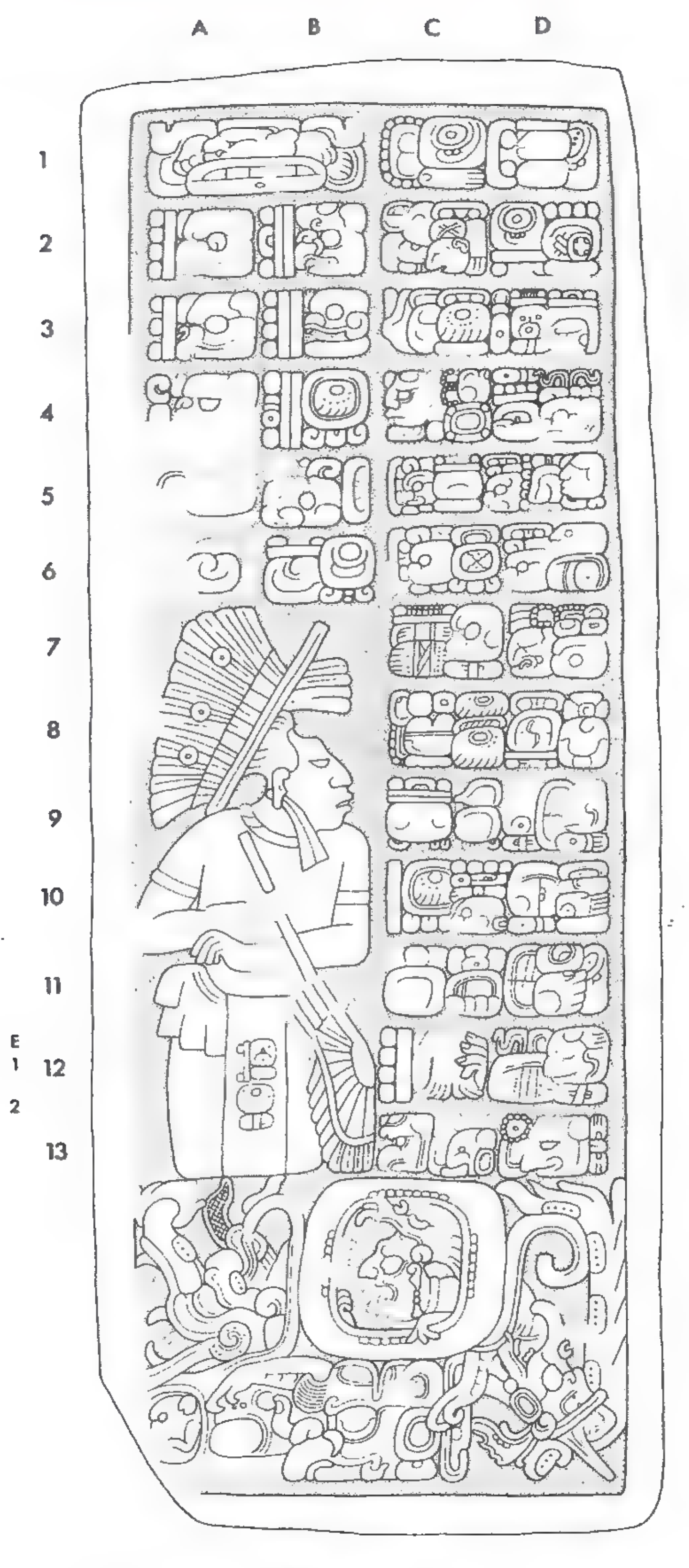
Lintel 37

Drawing by Ian Graham, CMHI



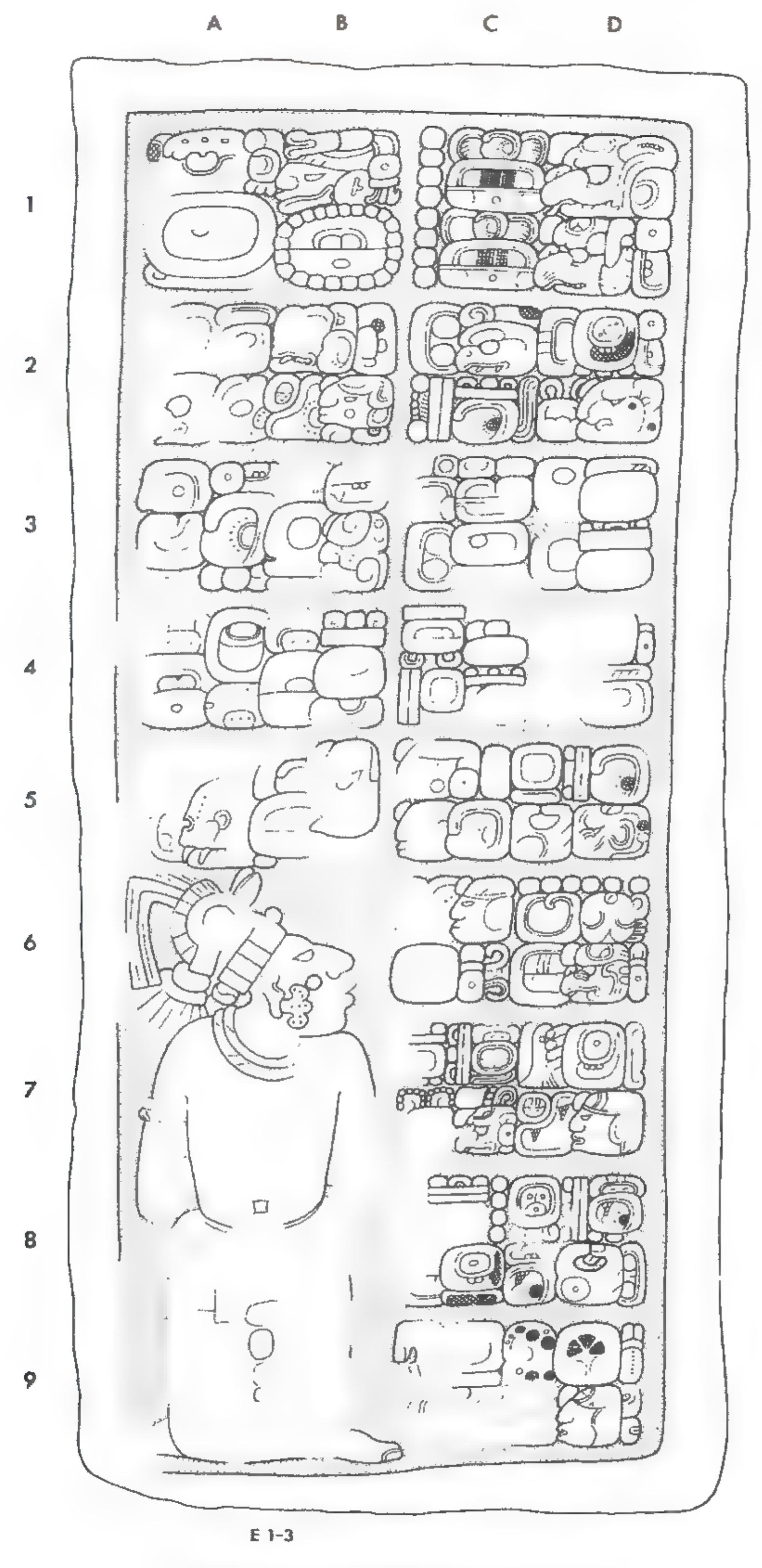
Lintel 35

Drawing by Ian Graham, CMHI



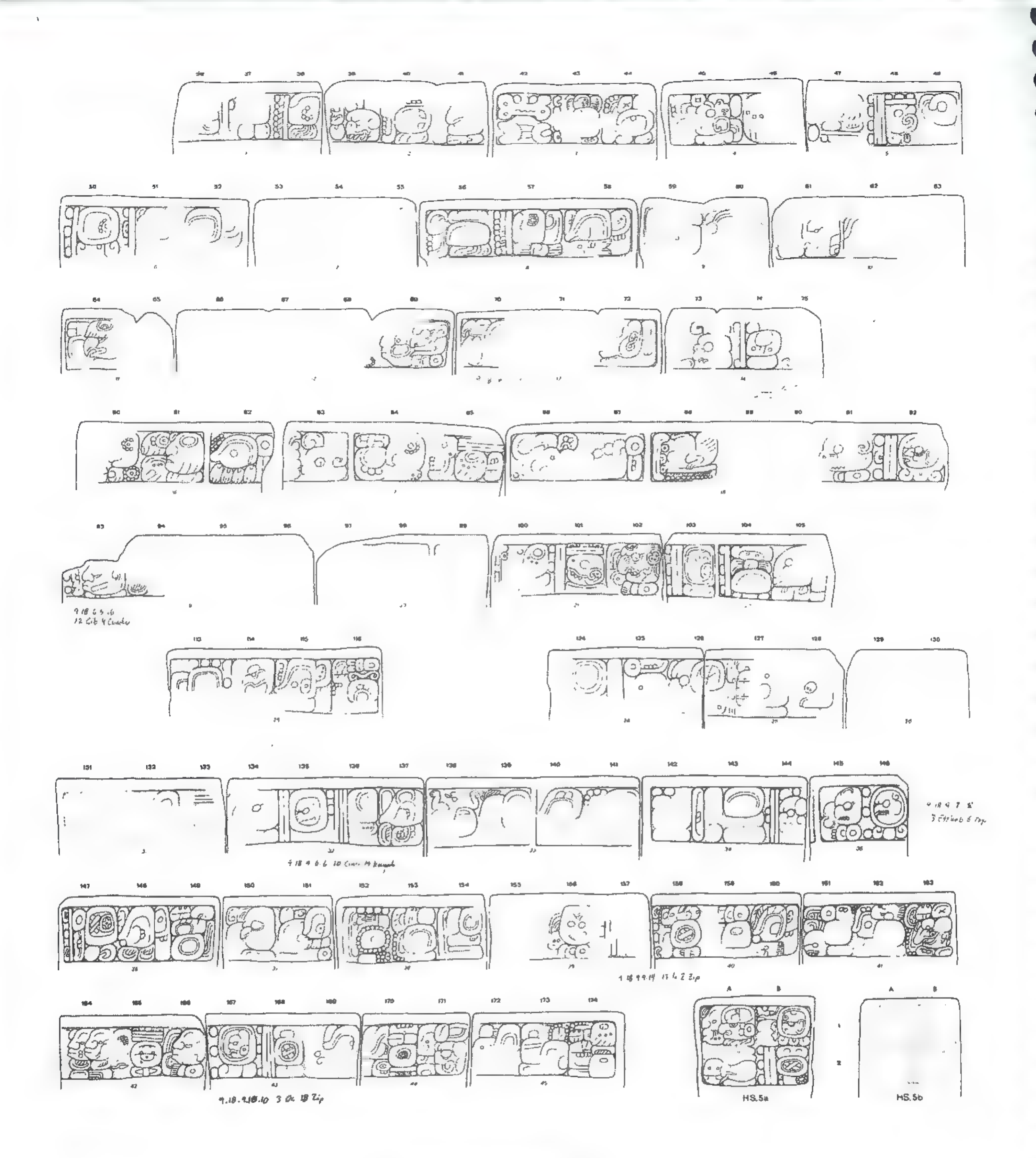
Step III of Hieroglyphic Stairway 3

Drawing by Ian Graham, CMHI

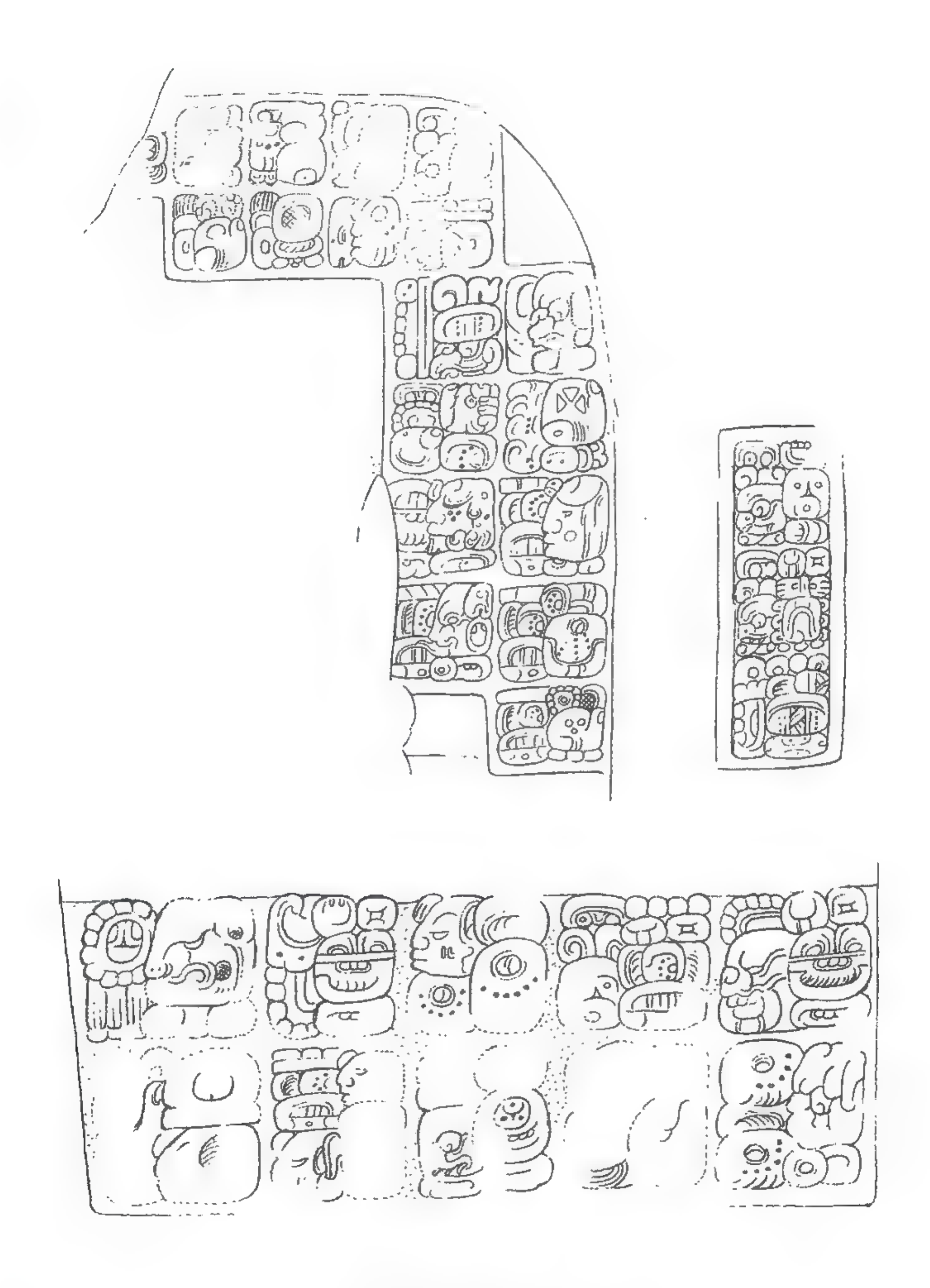


Step V of Hieroglyphic Stairway 3

Drawing by Ian Graham, CMHI



Hieroglyphic Stairway 5

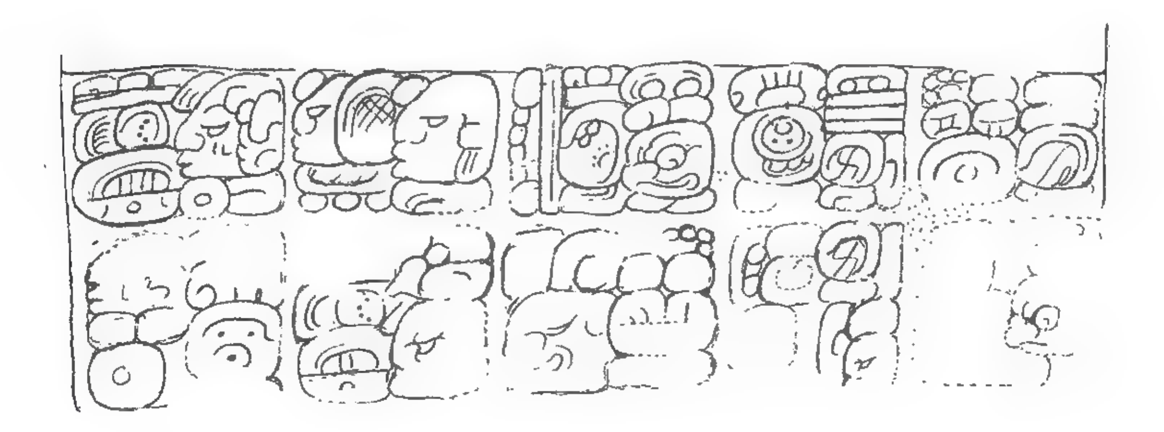


Dos Caobas, Stela 1 (front)

Preliminary drawing by David Stuart

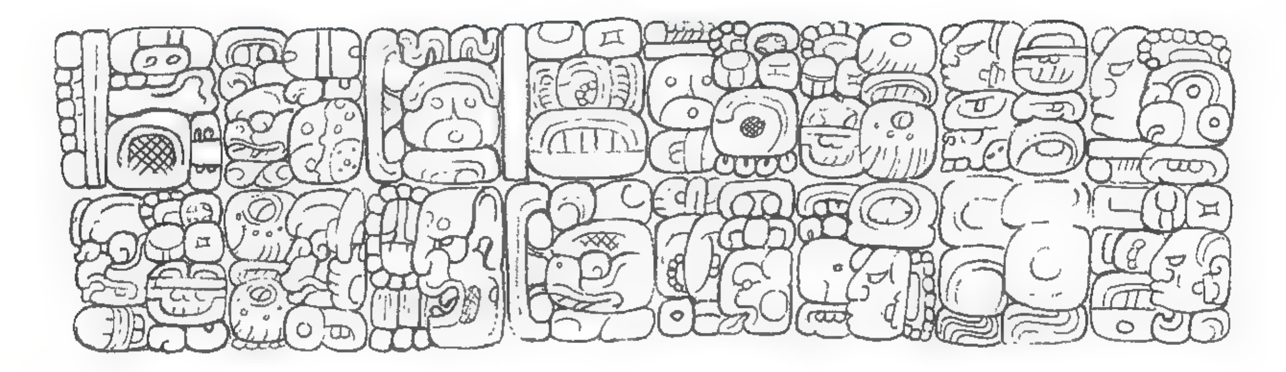
move up

(slight misalignment in the fragments as restored)



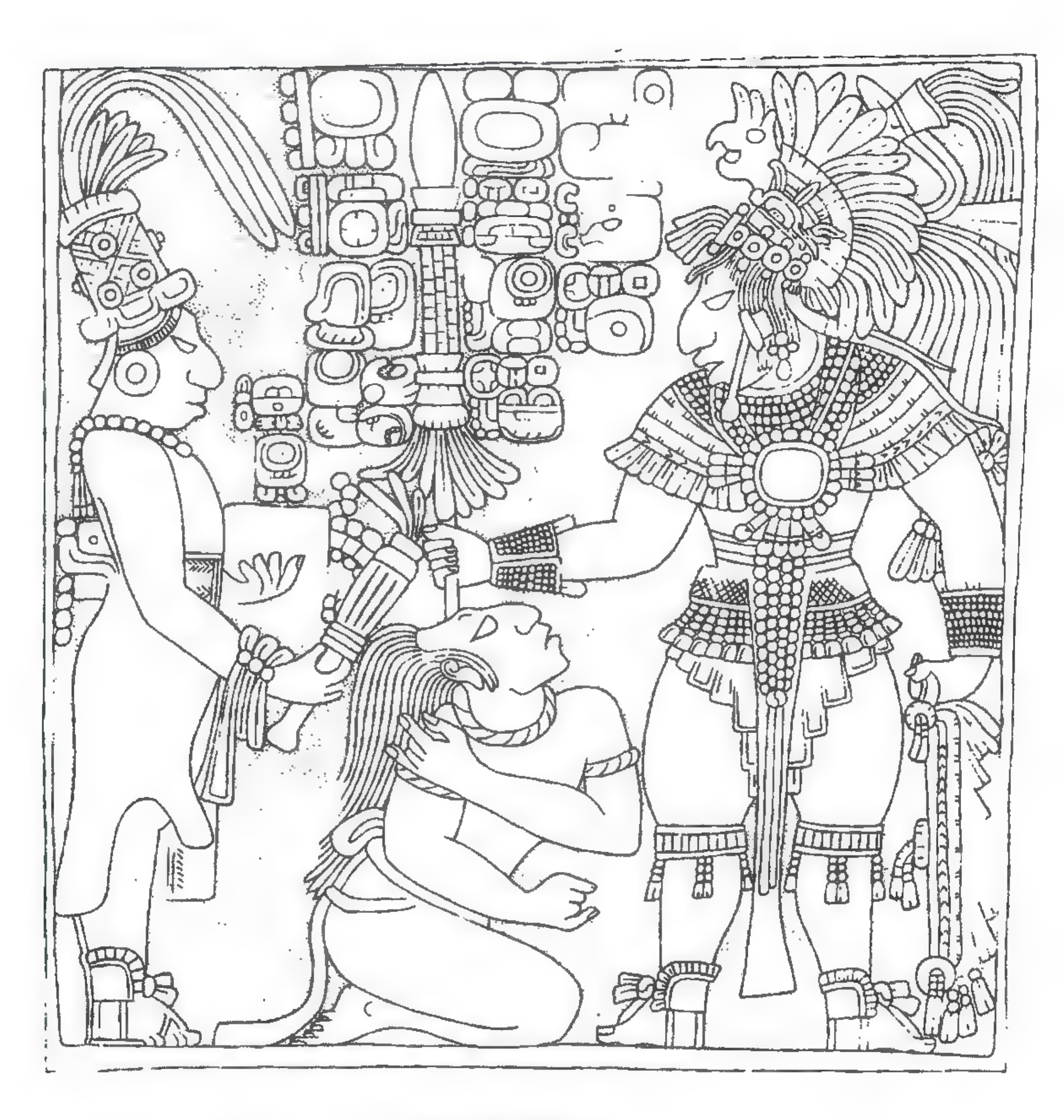
Dos Caobas, Stela 1 (back)

Preliminary drawing by David Stuart



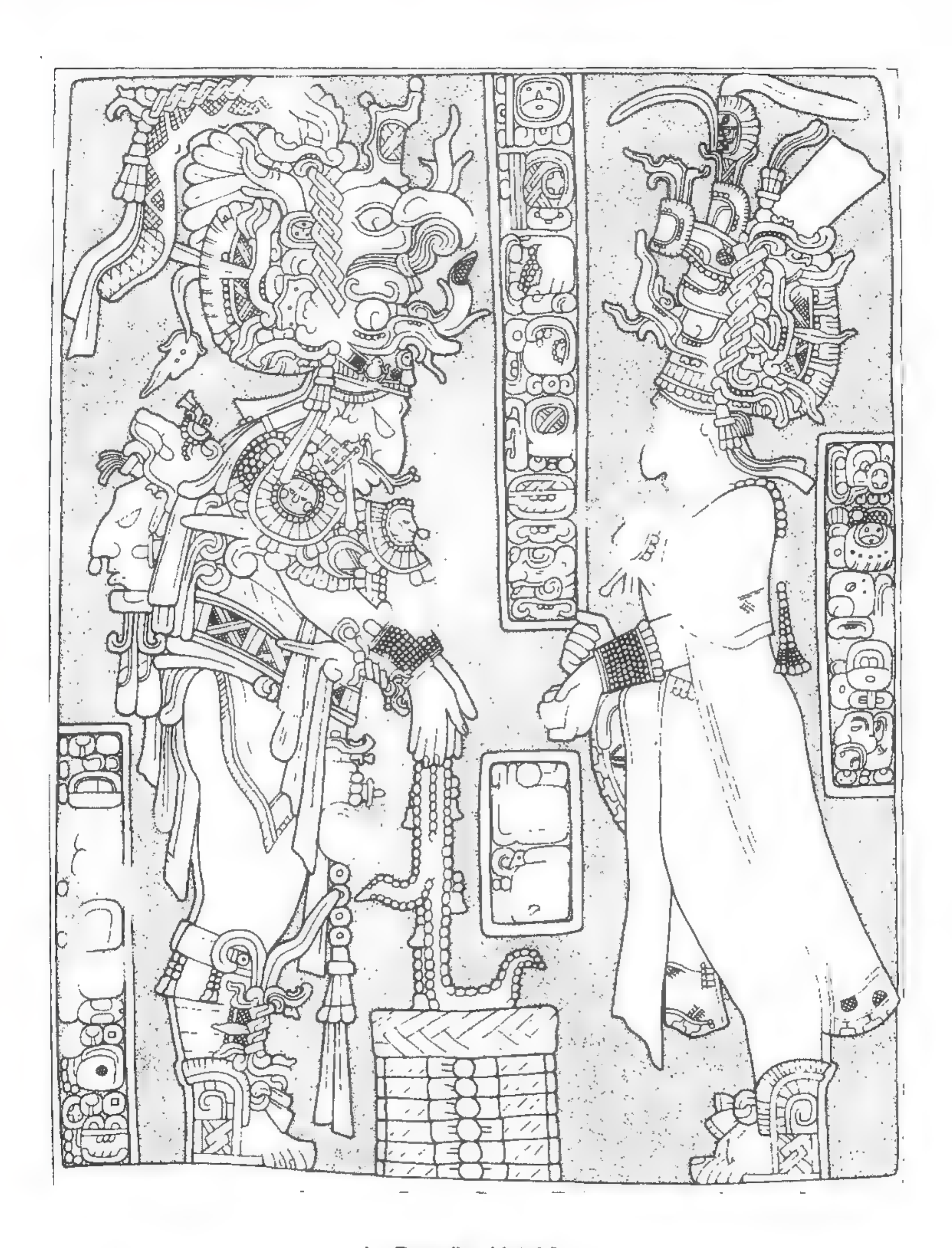
Dos Caobas, Stela 2, base text

Preliminary drawing by David Stuart



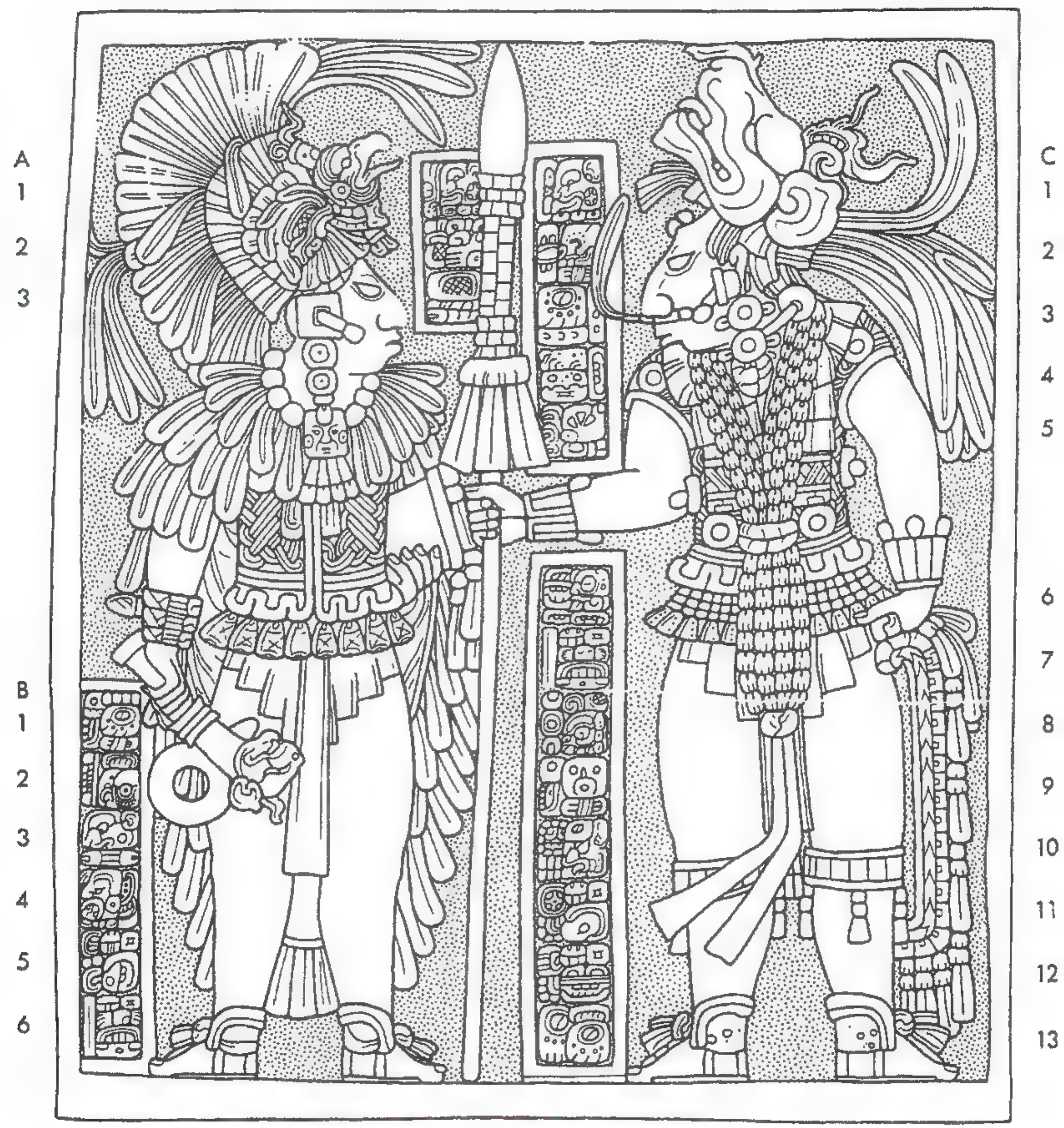
La Pasadita, Lintel 1

Drawing by Ian Graham
(from Simpson 1976:Fig.3)



La Pasadita, Lintel 2

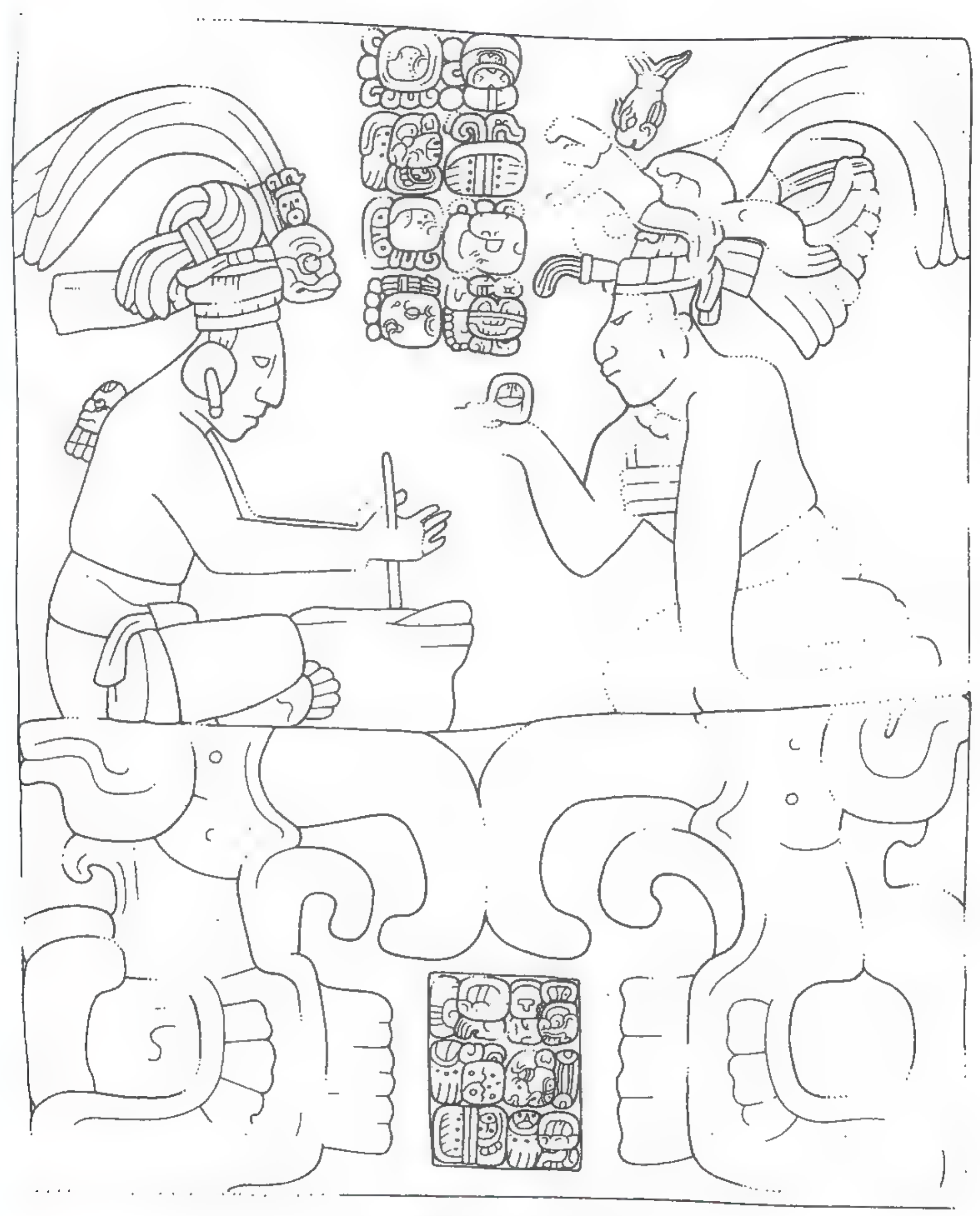
Drawing by Ian Graham
(from Simpson 1976:Fig.4)



Site R Lintel 1

Yaxchilan region, lintel

Drawing by Peter Mathews



La Pasadita YAX Area Loot A

Yaxchilan region, door lintel,
possibly La Pasadita

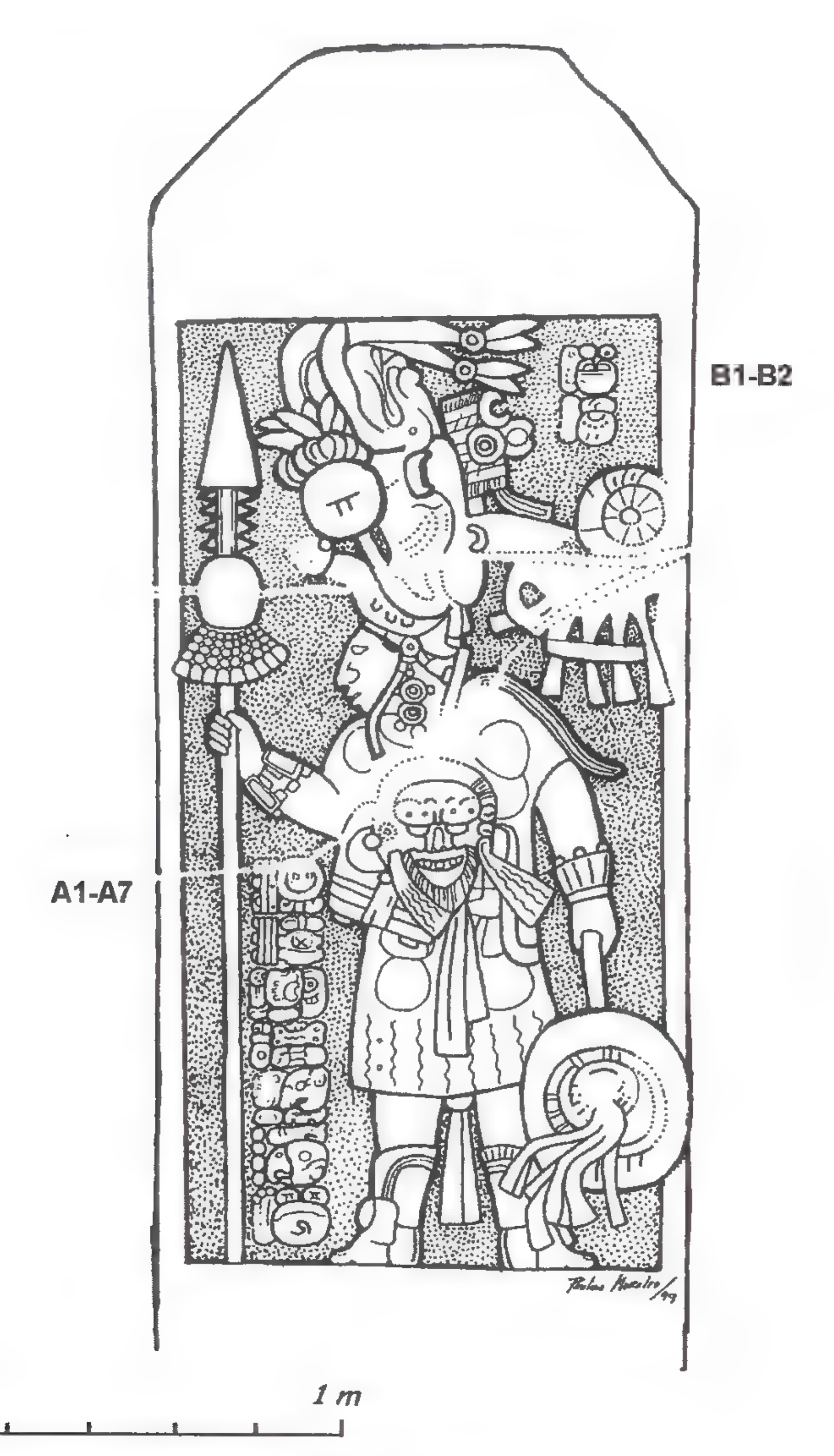
Drawing by Stephen Houston



Site R Lintel 4

Yaxchilan region, lintel

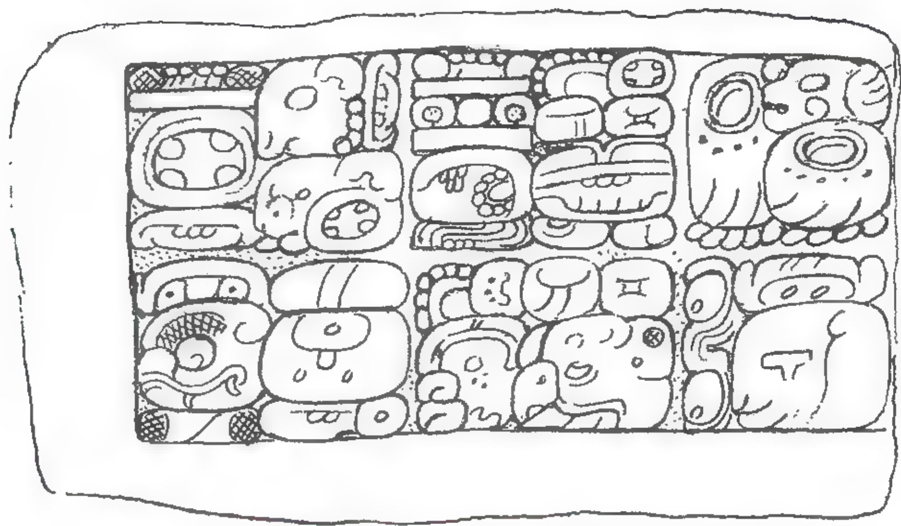
Drawing by Nikolai Grube



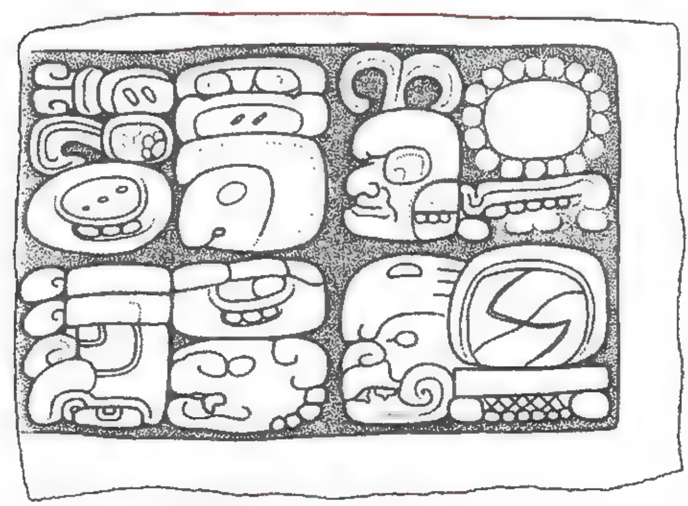
El Kinel Monument 1

Kinel, Stela 1

Drawing by Paulino Morales



El Chorro H.S. Step



El Chorro H.S. Step 2

Looted blocks of a hieroglyphic stairway(?), possibly El Chorro, Guatemala

Drawings by David Stuart (upper) and Christian Prager (lower)

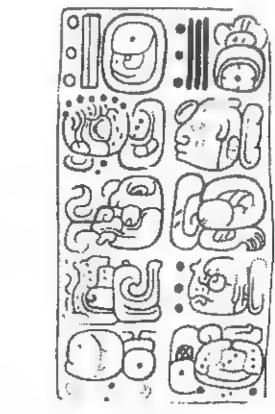
Bonampak, Panel 4

Drawing by Alexander Safranov

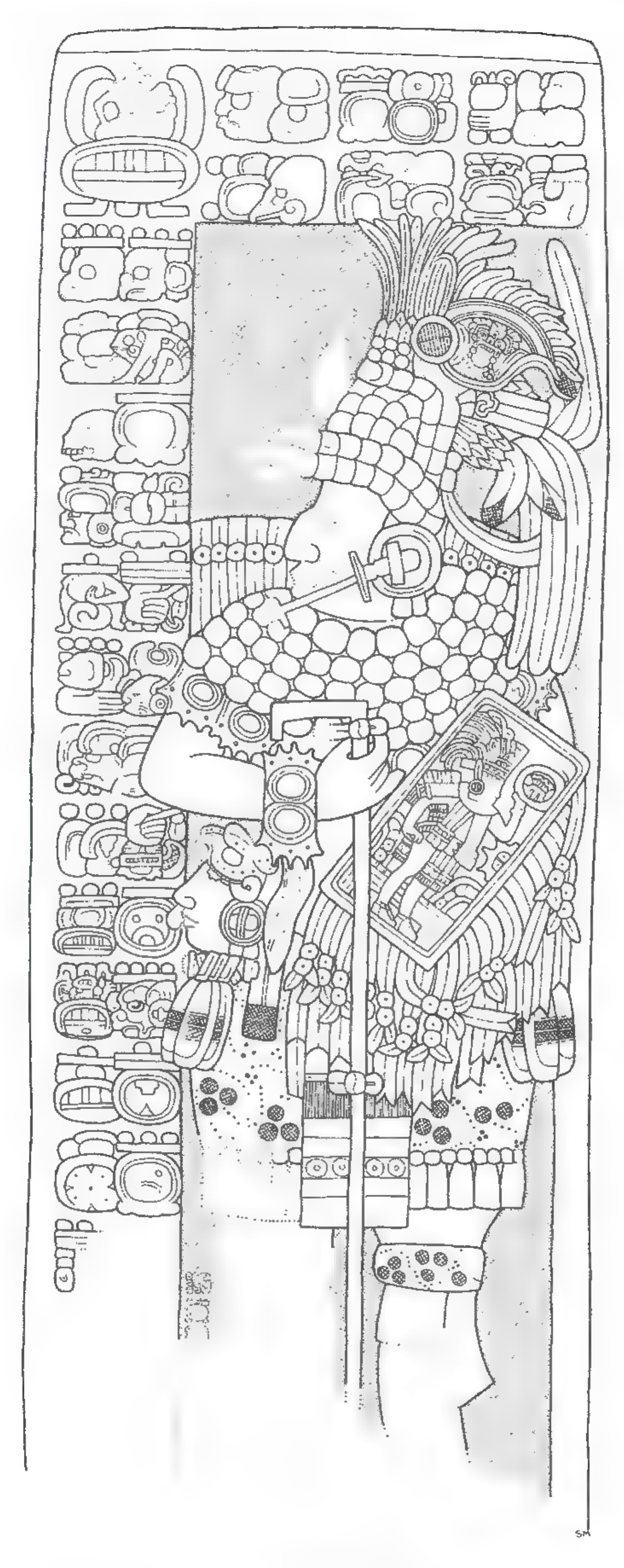
Bonampak, Panel 5

Drawing by Alexander Safranov

Lacanha, Panel 1
(Dumbarton Oaks, Washington, D.C.)



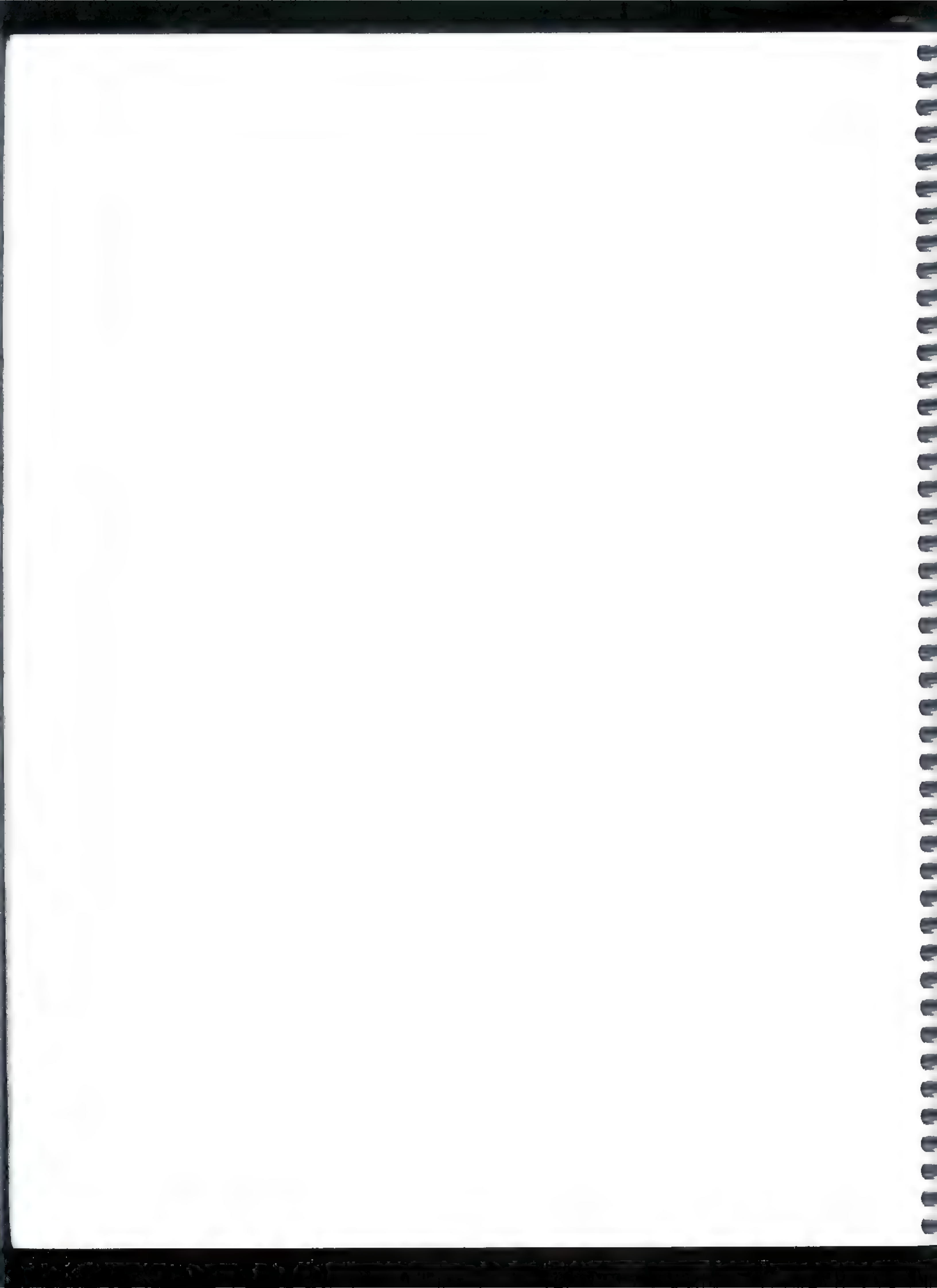
Drawing by David Stuart

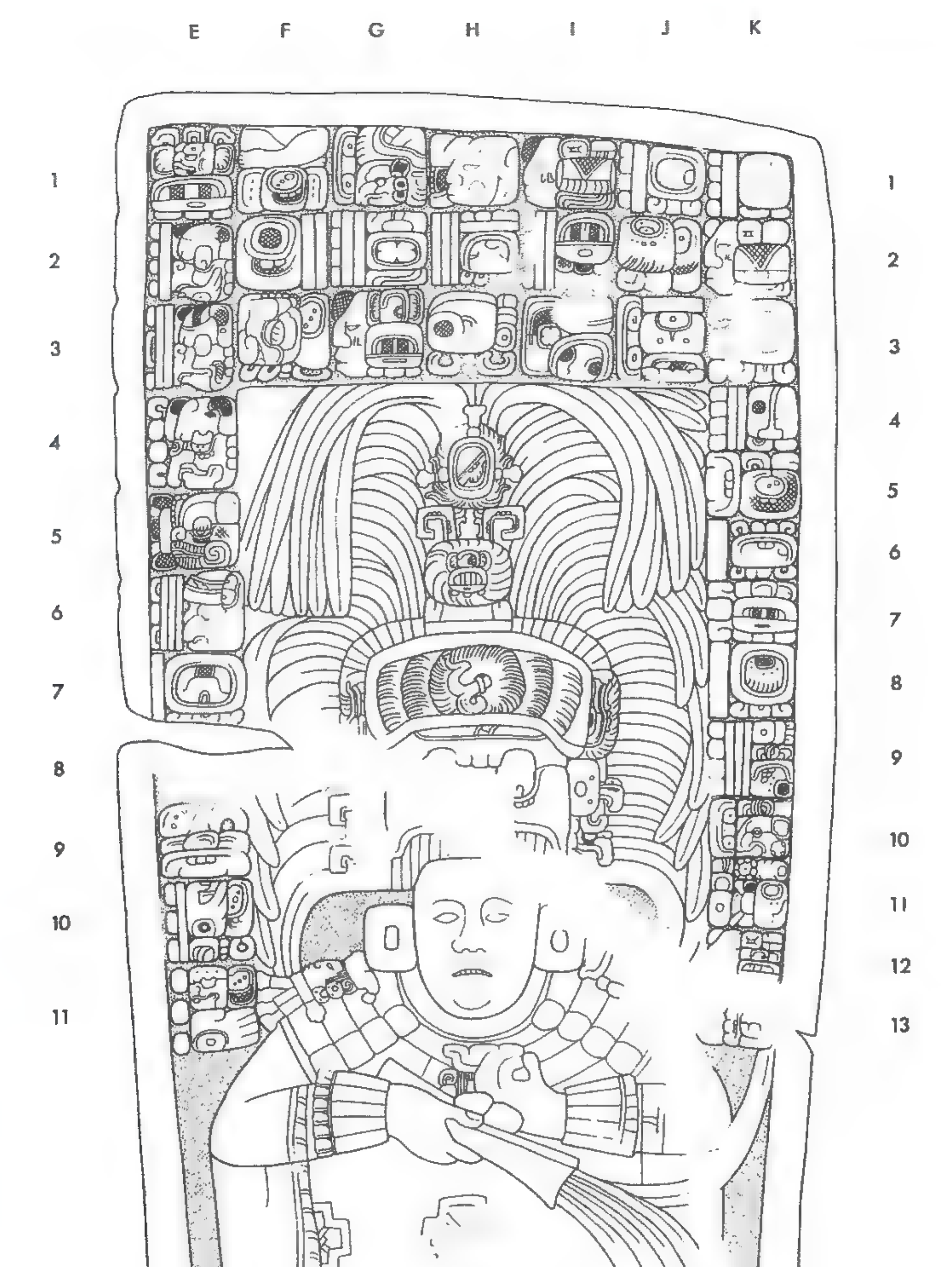


Lacanha, Stela 7

Preliminary drawing by Simon Martin

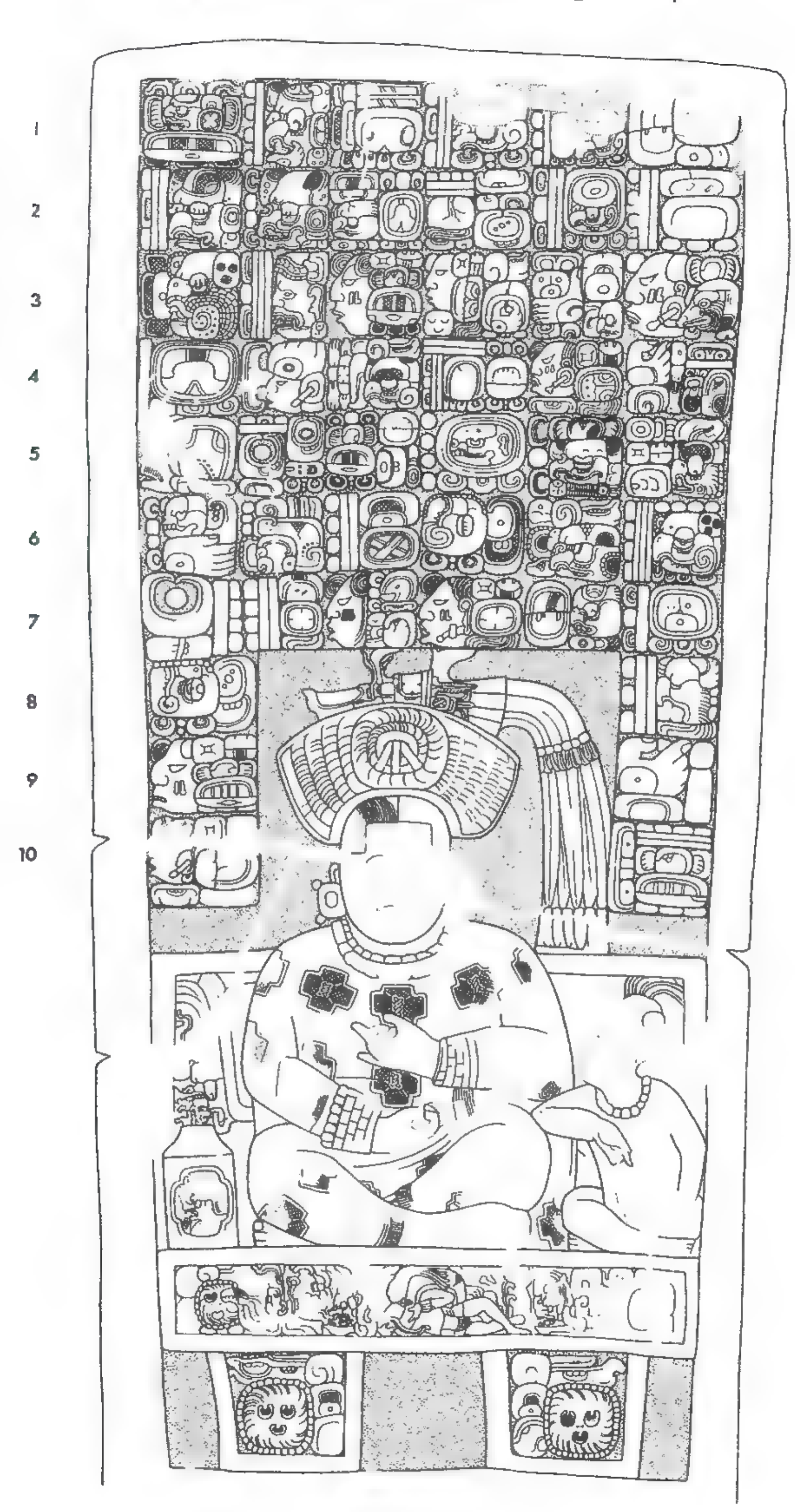
Selected Inscriptions of Piedras Negras and vacinity





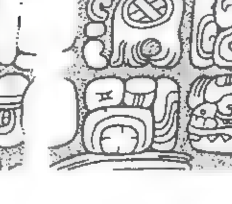
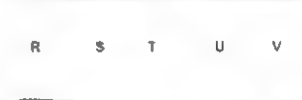
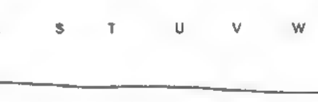
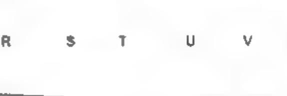
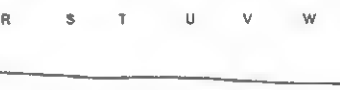
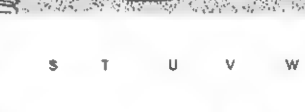
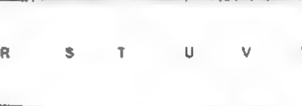
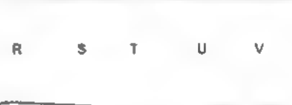
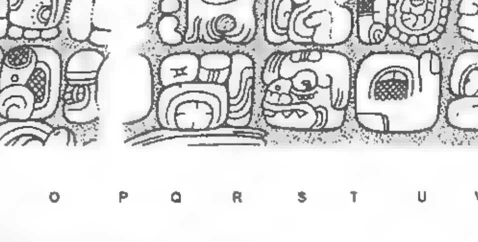
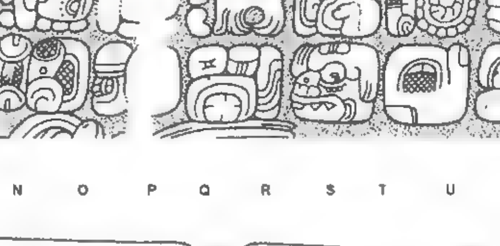
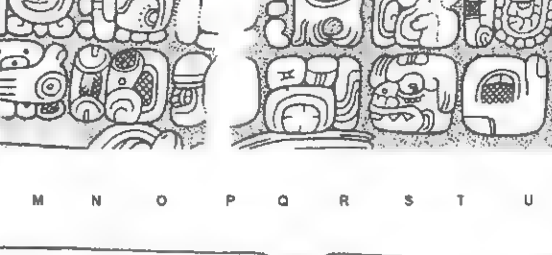
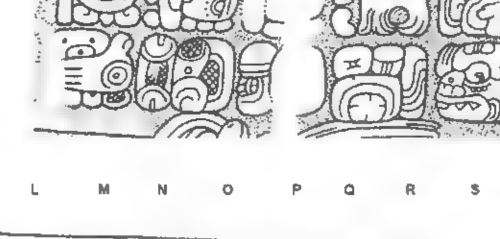
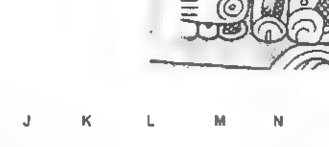
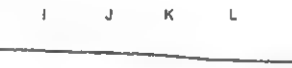
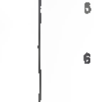
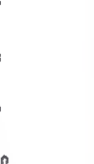
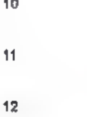
Piedras Negras, Stela 1 (back), detail

Drawing by David Stuart, CMHI



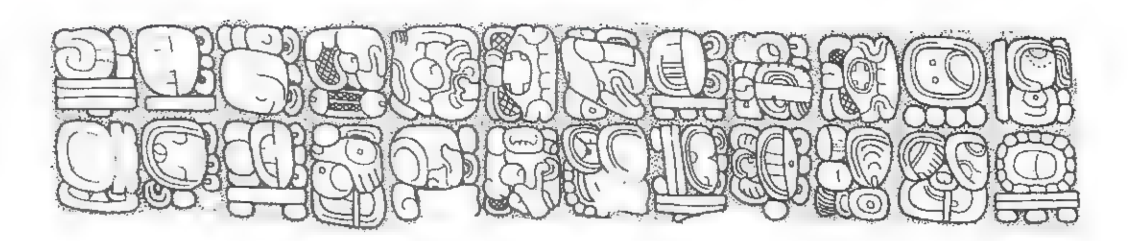
Piedras Negras, Stela 3 (back)

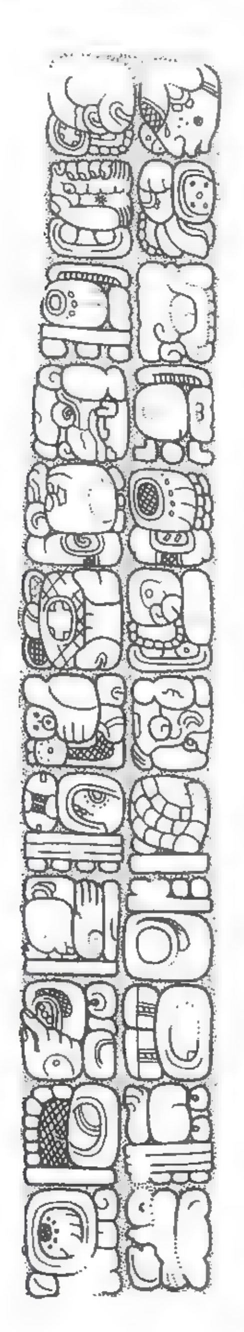
Drawing by David Stuart, CMHI

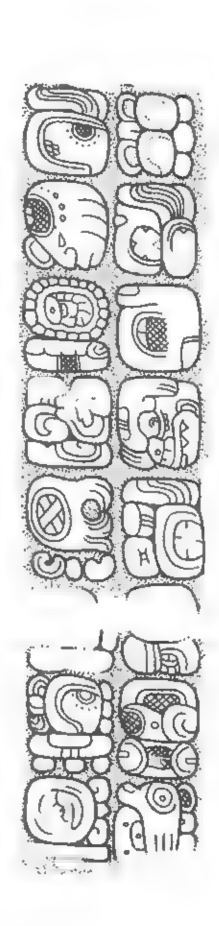


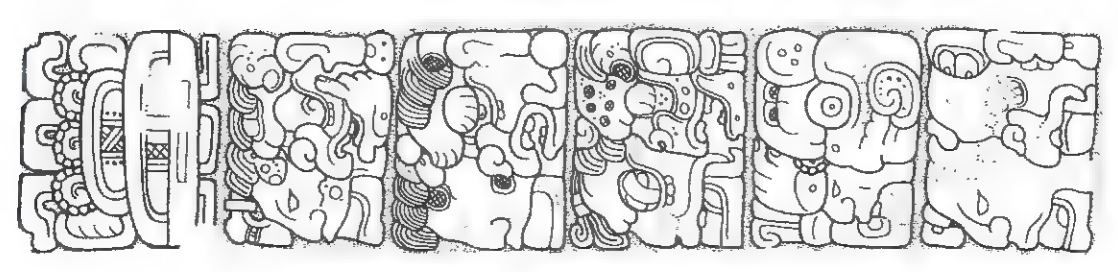
Piedras Negras, Panel 2

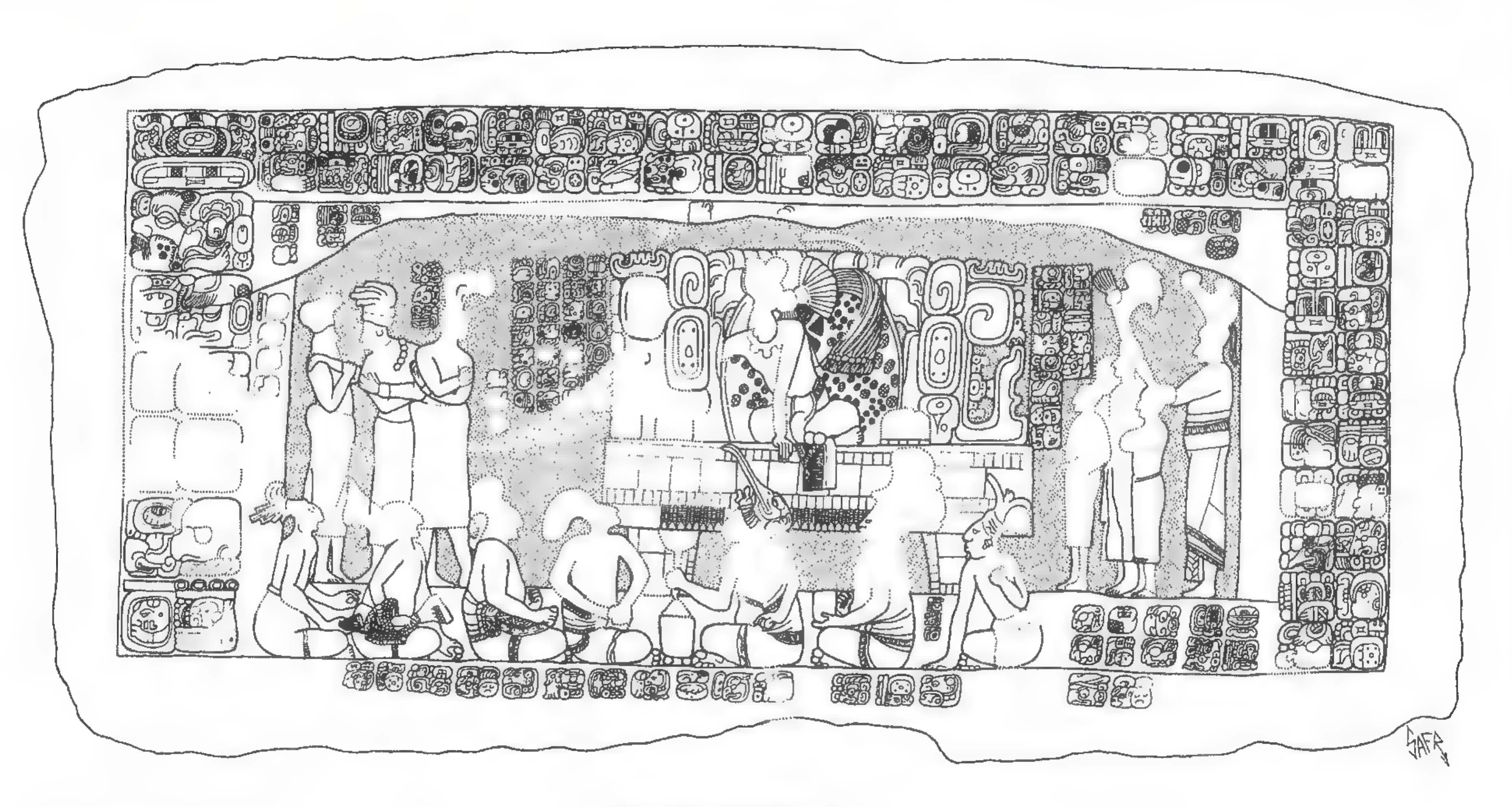
Drawing by David Stuart





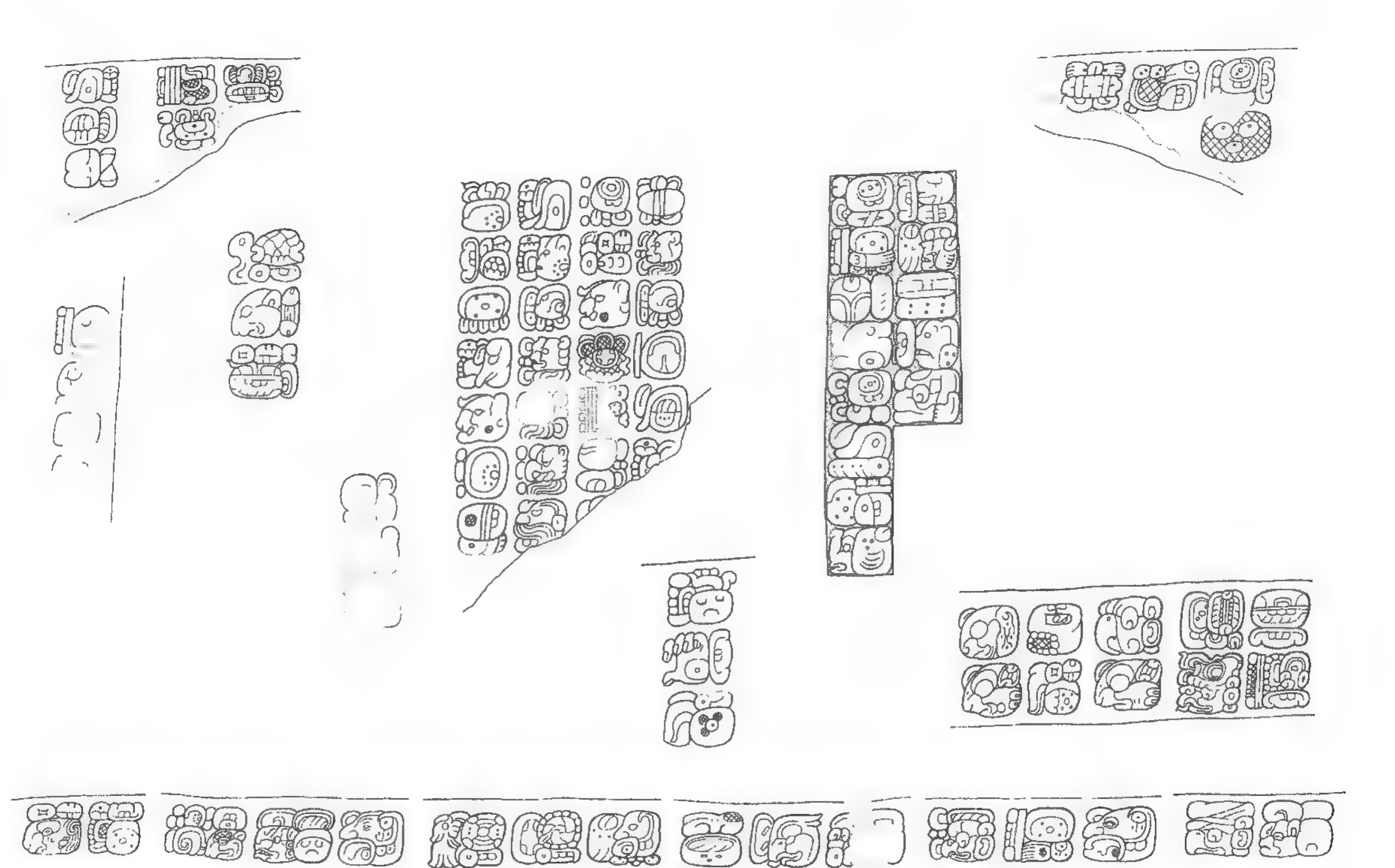






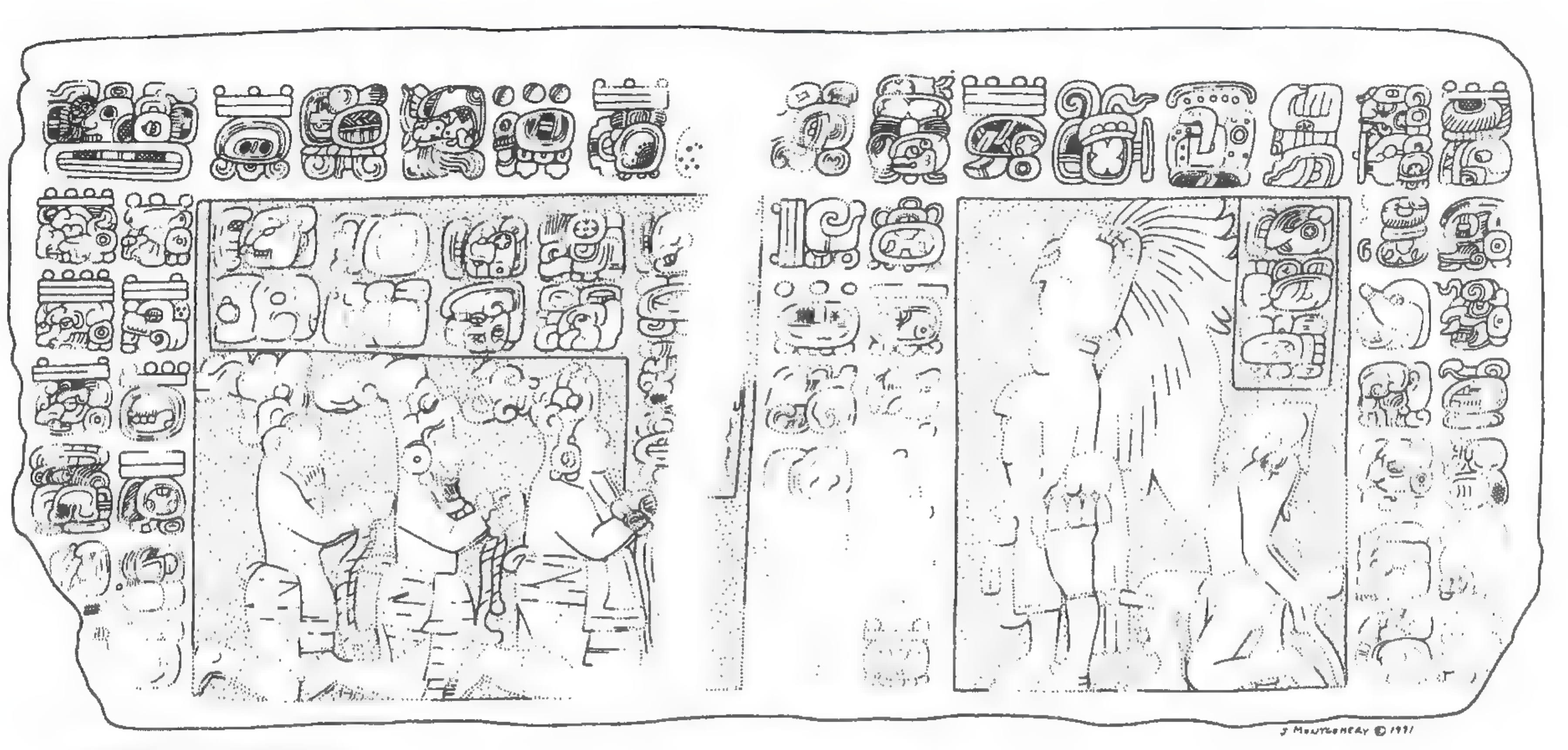
Piedras Negras, Panel 3

Drawing by Alexander Safronov



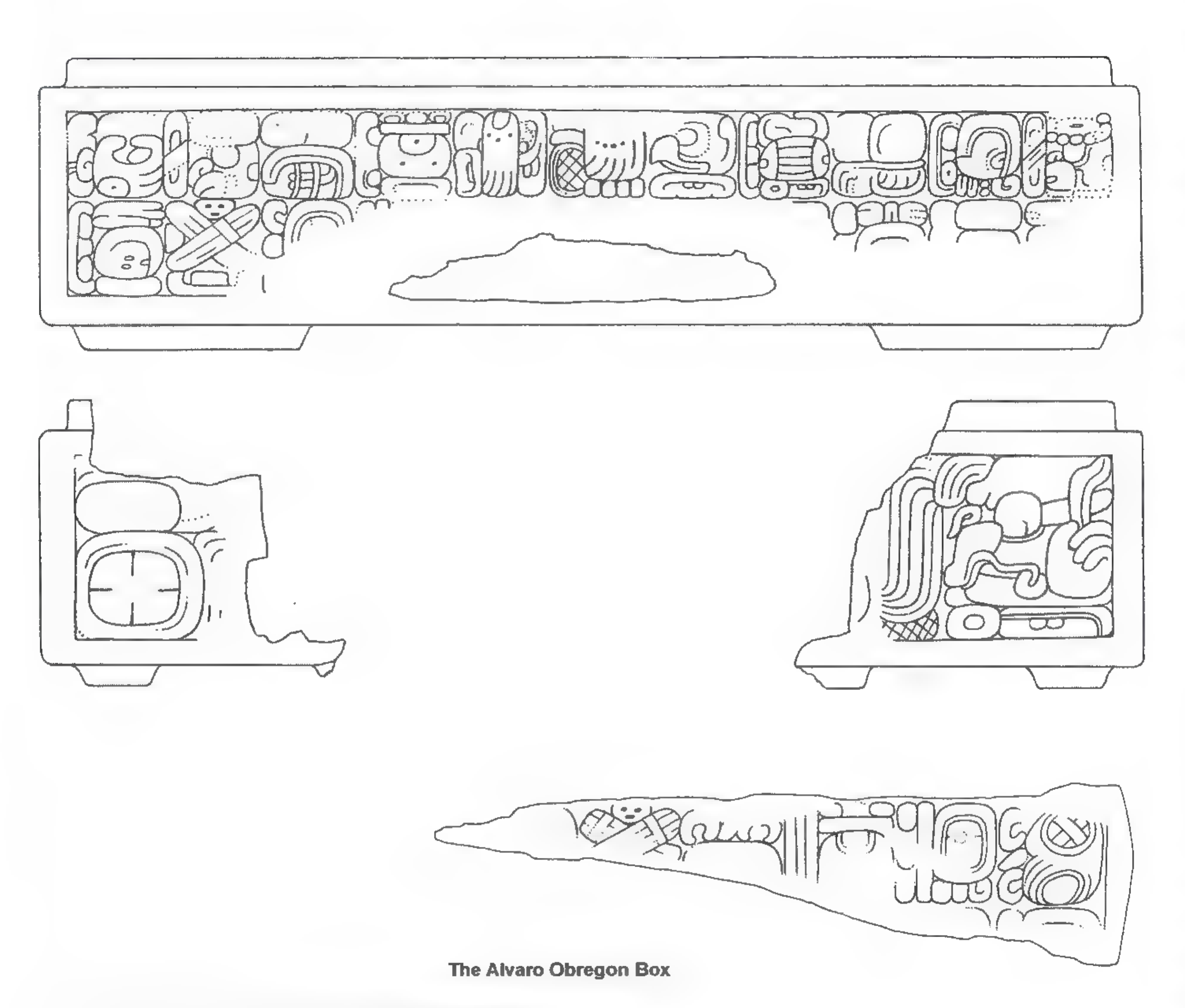
Piedras Negras, Panel 3 - secondary texts

Drawings by Alexander Safronov



Drawing by John Montgomery

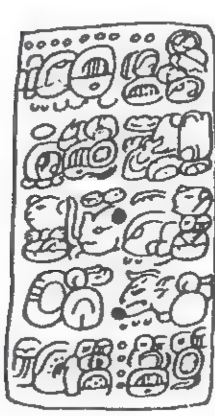
Piedras Negras, Panel 12



The Alvaro Obregon Box

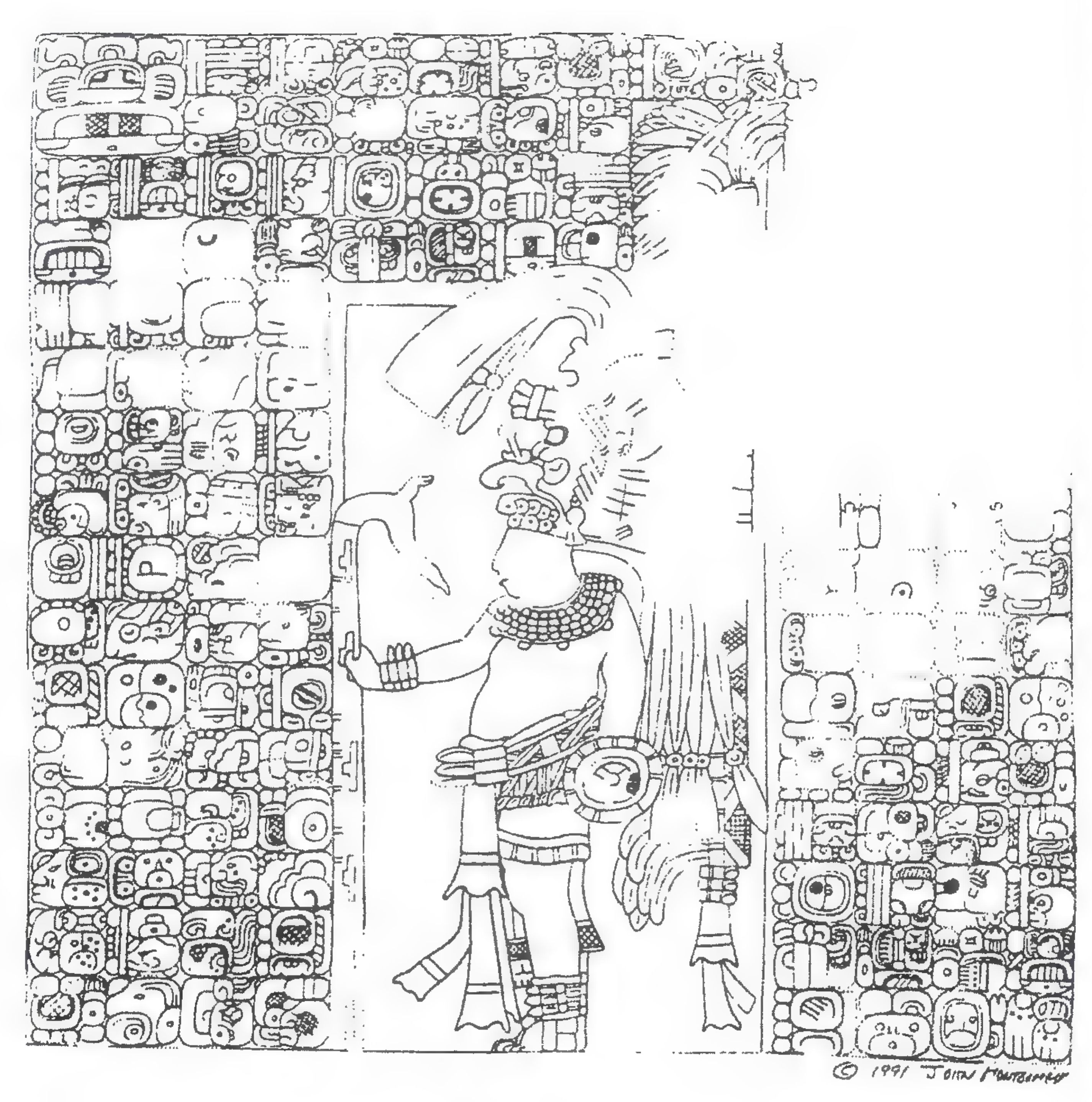
Drawings by Peter Mathews (upper and middle) and Marc Zender (lower)





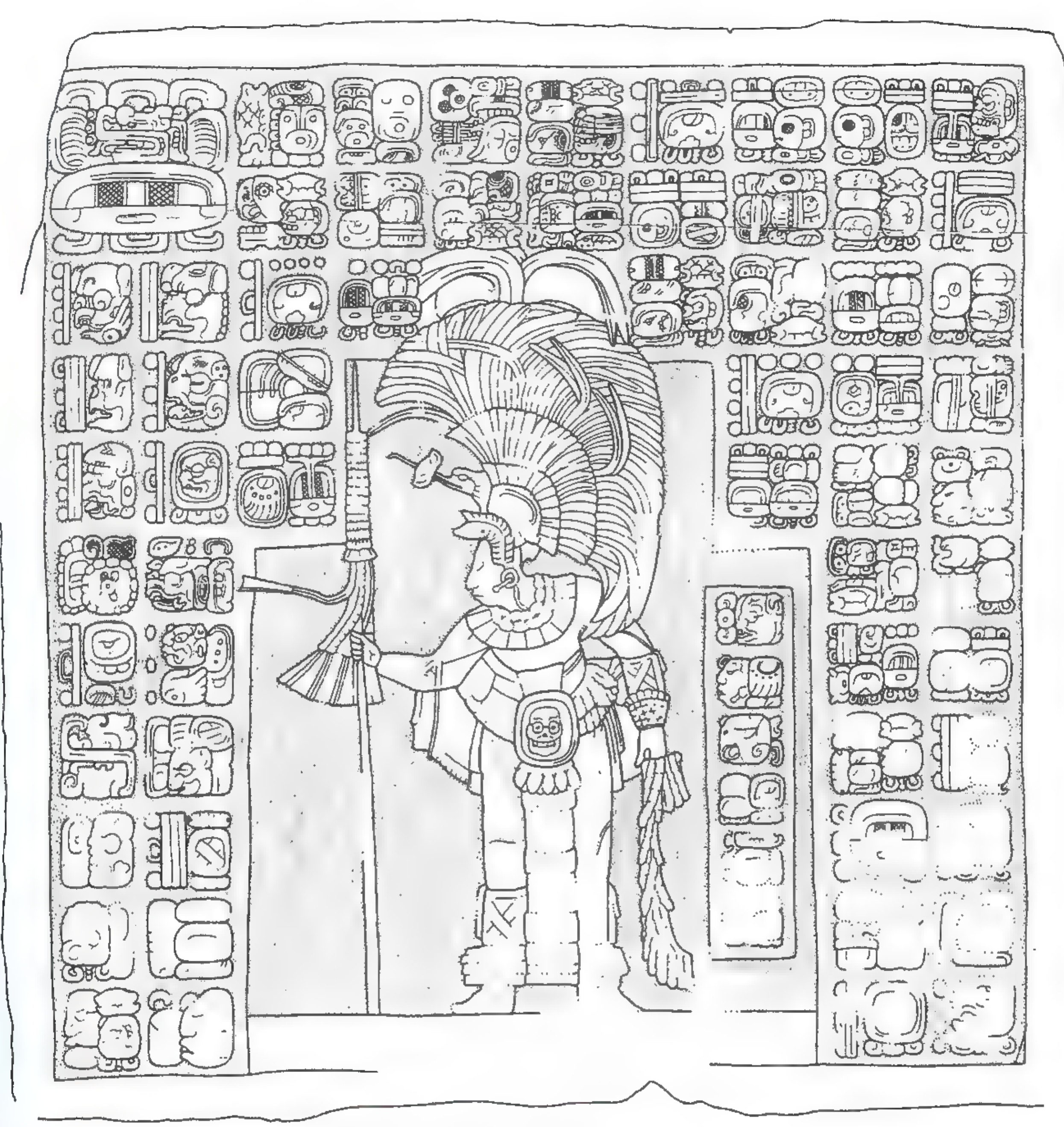
Piedras Negras, Burial 5, inscribed shells

Drawing by Linda Schele



El Cayo, Panel 1

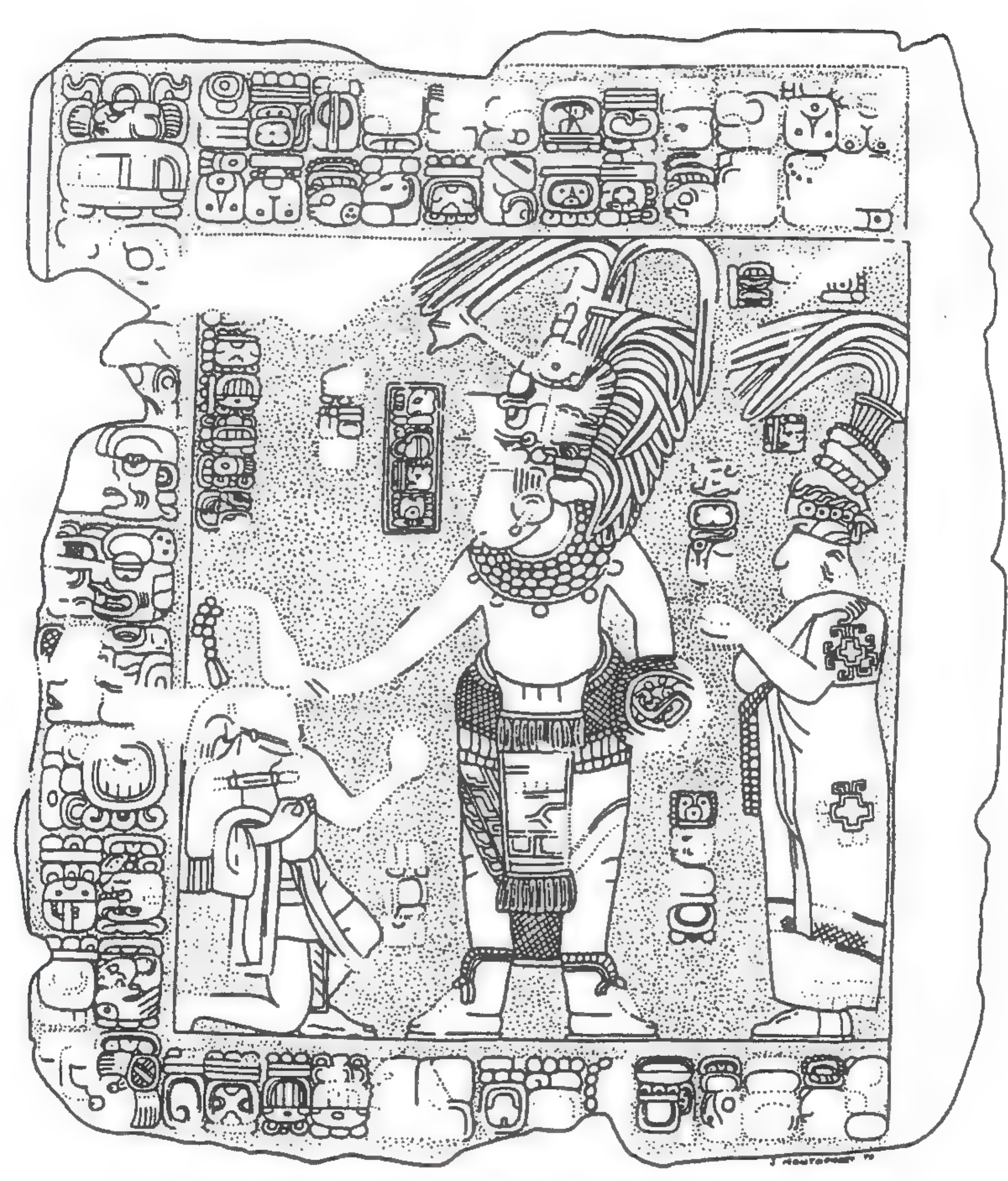
Drawing by John Montgomery



El Cayo Panel D.O.

Dumbarton Oaks, Relief Panel (Possibly El Cayo region)

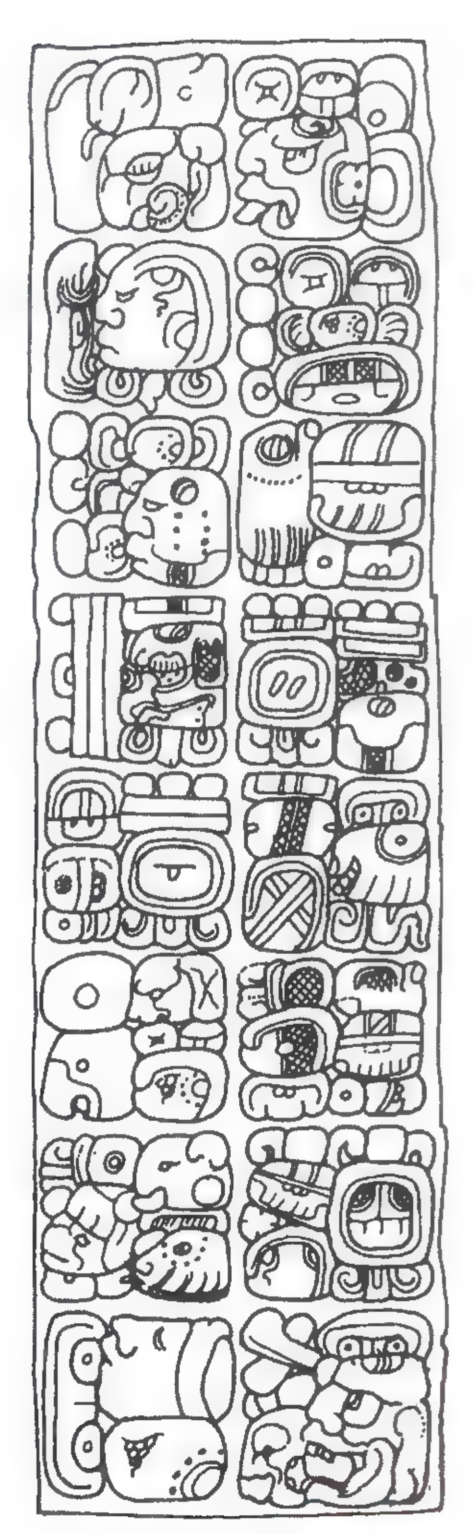
Drawing by Stephen Houston

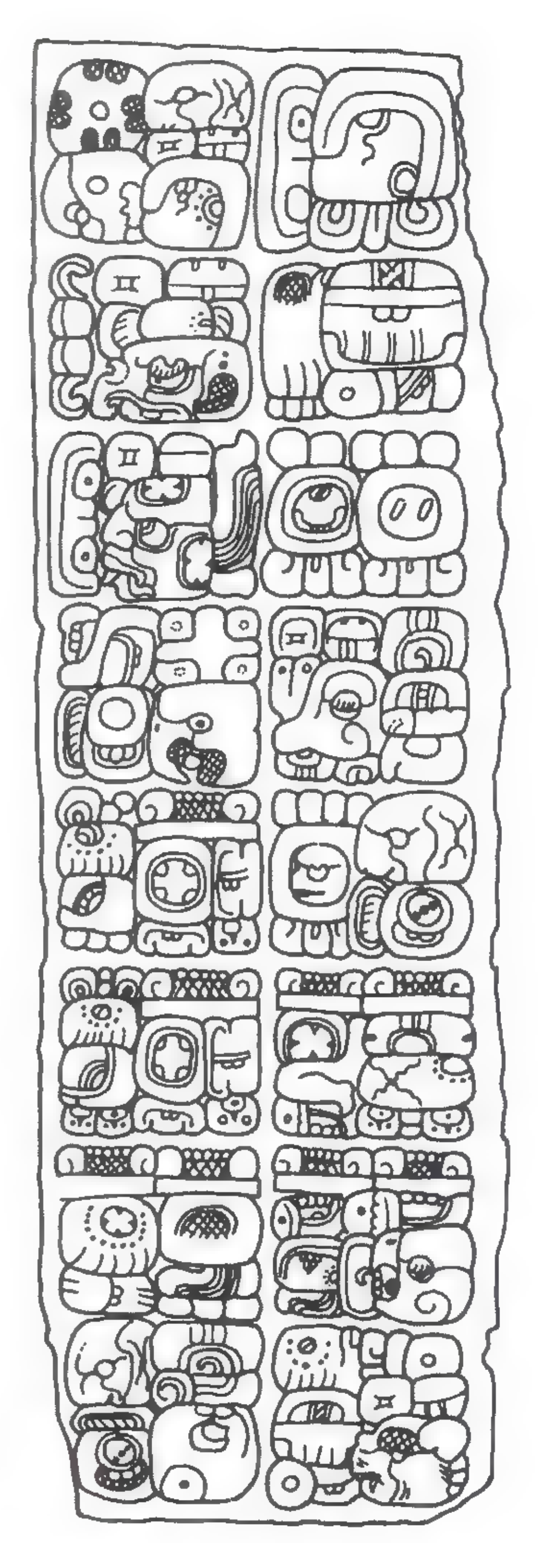


Panel, possibly El Cayo region, New Orleans Museum of Art

El Cayo Panel N.O.L.A.

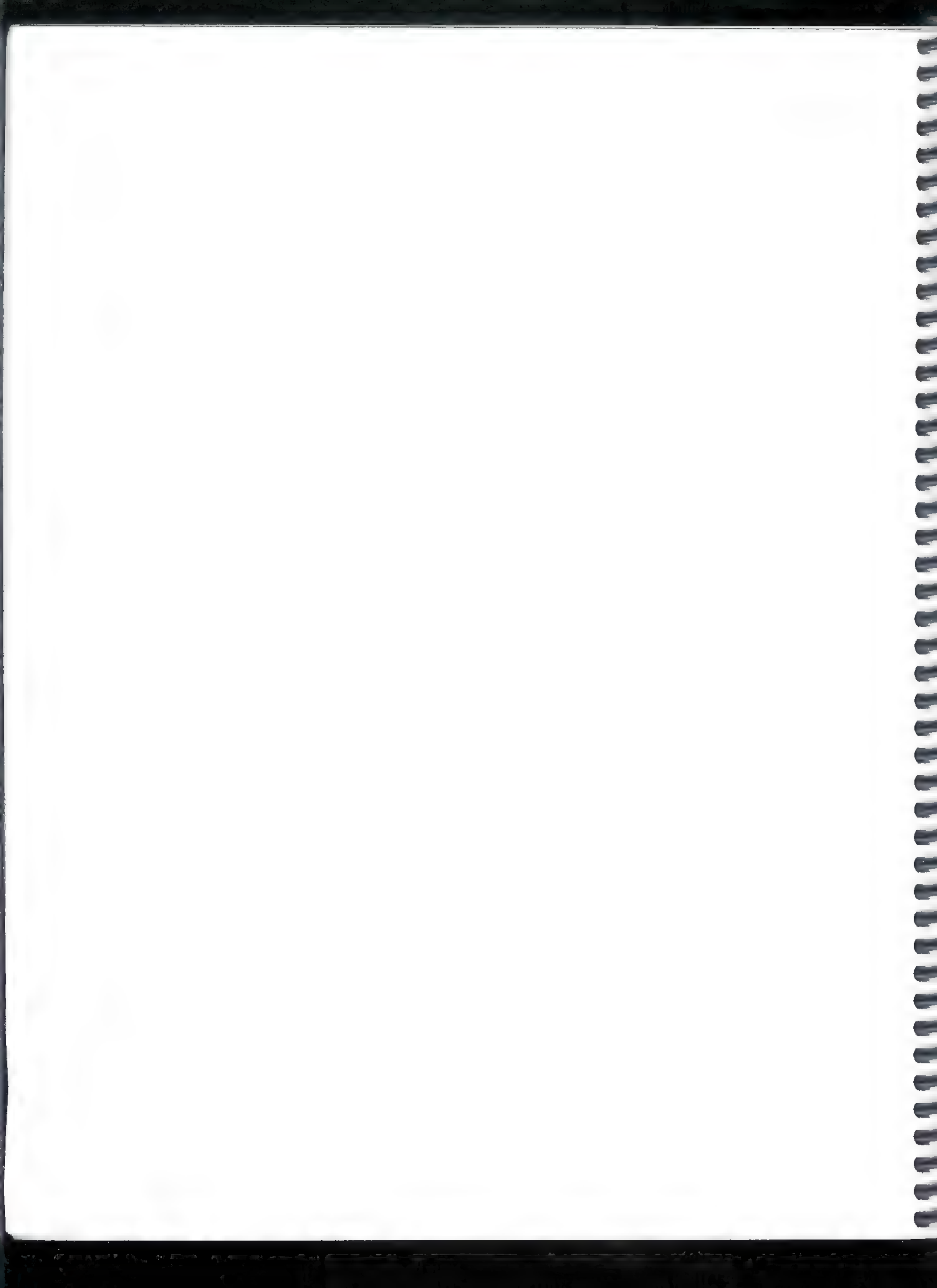
Drawing by John Montgomery





Sak Tzi AA Den / Brus
Looted panels, possibly from Saktz'i' site
(two of a larger set)

Drawings by Linda Schele



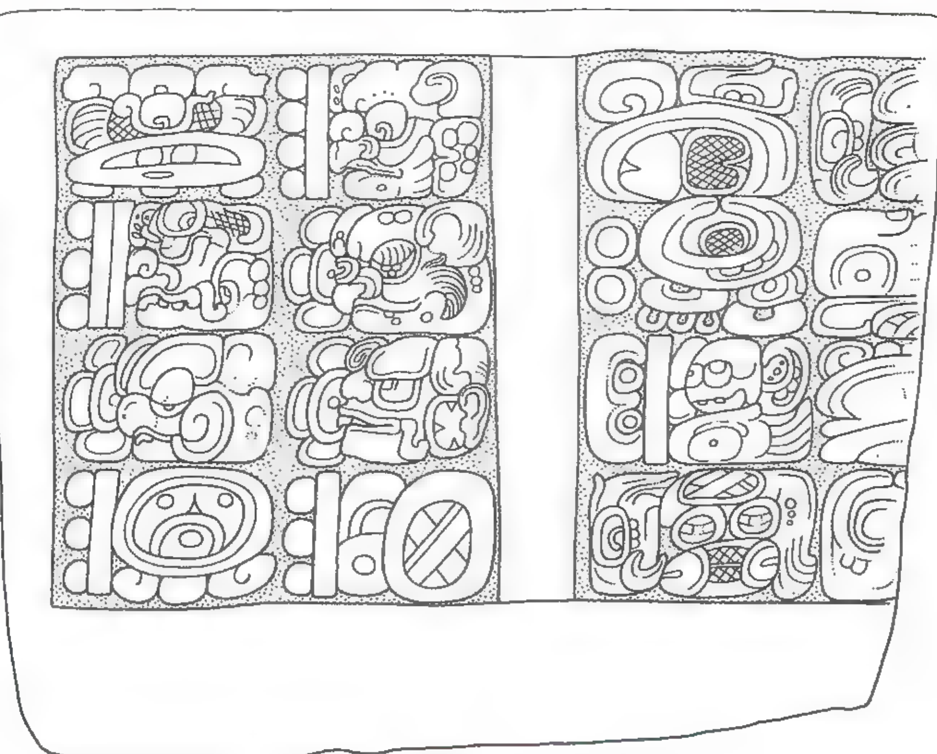
Selected Inscriptions of Pomona and vacinity



POMONA: Complete List of Long Count Dates, arranged in chronological order 968 words last updated 30 Oct 2006 **PMT 000d**

Dates associated with Pomona – List compiled by Peter Mathews

No.	SITE: Monument: Text Reference	Date of Monument	Date of Passage	Calendar Round	Julian Date	Event	Name		Comments
1	PMT: Hieroglyphic Panel 5:?-pB1?		8. 0. 0. 0. 0	9 Ajaw 3 Sip ???	9 Sep 41	Period-ending?	K'inich "Kuch K'in" B'alam		PE
2	PMT: Hieroglyphic Panel 5: pB4-pC2		8. 7. 0. 0. 0	6 Ajaw 13 Sotz' ?	5 Sep 179	Witnessed PE	?? Chan Ak		PE
3	PMT: Hieroglyphic Panel 3: pB1-pB2?		8.13. 0. 0. 0	9 Ajaw 3 Sak ???	14 Dec 297	Witnessed PE	?? B'alam		PE
4	PMT: Hieroglyphic Panel 10: Ap1-Bp1 Pomona		8.13. 7.17. 4	13 K'an 7 Mol ???	17 Oct 305	??	Chak B'olon Chak	1	
5	PMT: Hieroglyphic Panel 10: B6-A7? Panel		8.17. 8. 0. 0	8 Ajaw 8 Yaxk'in ???	8 Sep 384	??	?? Chak	1	
6	PMT: Hieroglyphic Panel 10: Implied 96G		9. 0.17.13. 9	1 Muluk 12 Sip ???	7 Jun 453	??	??	1, 2	
7	PMT: Hieroglyphic Panel 3: pD2-pC4		9. 0. 0. 0. 0	8 Ajaw 13 Kej	10 Dec 435	??	??		PE
8	PMT: Hieroglyphic Panel 8: ??, Ap4-Bp4		9. 4. 0. 0. 0	13 Ajaw 18 Yax ?	16 Oct 514	Witnessed PE?	??		PE
9	PMT: Hieroglyphic Panel 8: Cp4-Dp4		9. 6. 0. 0. 0	9 Ajaw 3 wayeb'	20 Mar 554	??	??		
	PNG: Stela 12: C8?		9. 6. 5. 0. 4	6 K'an 2 Kumk'u ???	26 Feb 559	Dedication of Pomona?	??		
10	PMT: Hieroglyphic Panel 7: A1?-B1		9. 8. 0. 0. 0	5 Ajaw 3 Ch'en ?	22 Aug 593	Witnessed PE	?? "Hix B'alam" Chak		PE
11	PMT: Hieroglyphic Panel 7: D3-C1		9. 9. 0. 0. 0	3 Ajaw 3 Sotz'	9 May 613	Witnessed PE	K'inich Ho' "Hix B'alam"		PE
	PAL: Pal., Hse. C, Hier. St.: C4bi-C4aii		9.11. 6.16.11	7 Chuwen 4 Ch'en ??	7 Aug 659	Dedication?	K'inich Janab' Pakal I		
	PAL: Pal., Hse. C, West Found.: G1		9.11.10.16. 7	13 Manik' 20 Yaxk'in	13 Jul 663	Death (sacrifice?)	Pomona lord		
12	PMT: Hieroglyphic Panel 7: C4-D4		9.13. 0. 0. 0	8 Ajaw 8 Woh	15 Mar 692	--	--		
13	PMT: Hieroglyphic Panel 1: pA1-pB2		9.13. 0. 0. 0	8 Ajaw 8 Woh	15 Mar 692	Scattering	"Kuch K'in" B'alam		PE
14	PMT: Hieroglyphic Panel 1: pC3		9.13. 0. 0. 0	8 Ajaw 8 Woh ?	15 Mar 692	??	??		PE
15	PMT: Hieroglyphic Panel 2: A1-D4		9.13. 0. 0. 0	8 Ajaw 8 Woh	15 Mar 692	--	--		IS
16	PMT: Hieroglyphic Panel 11: Ap2 Pomona Panel 96G		9.13. 4. 1. 1	13 Imix 9 Woh ??	15 Mar 696	Death	"Kuch K'in" B'alam	2	
17	PMT: Stela 5: Ap2b-Bp2		9.13. 5. 0. 0	1 Ajaw 3 Pop	17 Feb 697	First? period-ending	Ho' "Hix B'alam"		PE
	PAL: Temple XIII, Tomb, Jade Palenque Pendant Jade		9.13. 5. 0. 0	1 Ajaw 3 Pop	17 Feb 697		"Kuch K'in" B'alam		
18	PMT: Stela 5: Ap4b-Bp4a		9.13. 5. 7. 0	11 Ajaw 3 Mol	7 Jul 697	??	??		
19	PMT: Fragment 29: pB1		9.13. 5.10. 5	11 Chikchan 8 Sak ???	10 Sep 697	Tomb dedication	Pi B'alam	2	
20	PMT: Stela 7: C3-D3		9.14. 4.17.15	7 Men 3 K'ank'in	30 Oct 716	??	??		
21	PMT: Stela 7: A10-B10		9.15.19.14.14	1 Hix 7 Woh	28 Feb 751	819 d.	--		819d
22	PMT: Stela 7: D6-C7		9.15.19.15.13	7 B'en 6 Sip	19 Mar 751	Accession	K'inich Ho' "Hix B'alam"		
23	PMT: Stela 7: A1-B8		9.16. 0. 0. 0	2 Ajaw 13 Sek	5 May 751	Period-ending	--		IS
24	PMT: Stela 1: A1-A2?		9.16. 5. 0. 0	8 Ajaw 8 Sotz' ???	8 Apr 756	Period-ending	"Kuch K'in" B'alam		PE
	PNH: Stela 1: A4-B4 Panhale Stela 1		9.16.19.13.19	10 Kawak 17 K'ank'in ?	31 Oct 770	Accession?	"Ho' Hix B'alam"		
25	PMT: Panel 1: pA1-pI5		9.17. 0. 0. 0	13 Ajaw 18 Kumk'u	20 Jan 771	Period-ending	?? "Hix B'alam" Chak		IS
26	PMT: Panel 1: pO4-pN5		9.17. 0. 0. 3	3 Ak'b'al 1 wayeb'	23 Jan 771	"It got finished"	??		
27	PMT: Hieroglyphic Panel 6: pA1-pB2		9.18. 0. 0. 0	11 Ajaw 18 Mak ??	7 Oct 790	??	??		IS
	PNG: Stela 12		9.18. 1. 9. 2	7 Ik' 10 Sotz'	1 Apr 792	Star-war against PMT			
	PNG: Stela 12: C13		9.18. 3. 6. 4	6 K'an 2 Pop ??	23 Jan 794	Second star-war against PMT			
	PNG: Stela 12		9.18. 3.15. 4	4 K'an 2 Yax ??	22 Jul 794	??	Pomona lord		
La Mar Stela 3	COL. Los Angeles, Stela: B9-B10		9.18. 3. 5.19	1 Kawak 2 wayeb'	18 Jan 794	Capture of subordinate	"Kuch" B'alam		
	PNH: Stela 1: A1-B2 Panhale Stela 1		10. 0. 0. 0. 0	7 Ajaw 18 Sip ?	11 Mar 830	Period-ending	["Ho' Hix B'alam"?]	1	PE



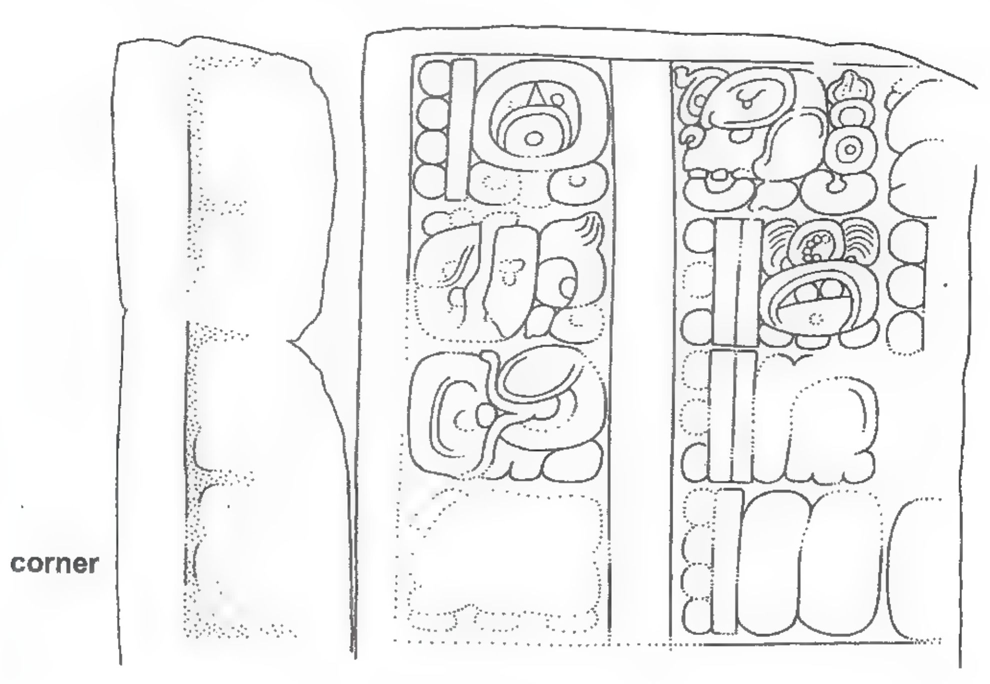
Pomona Panel 2



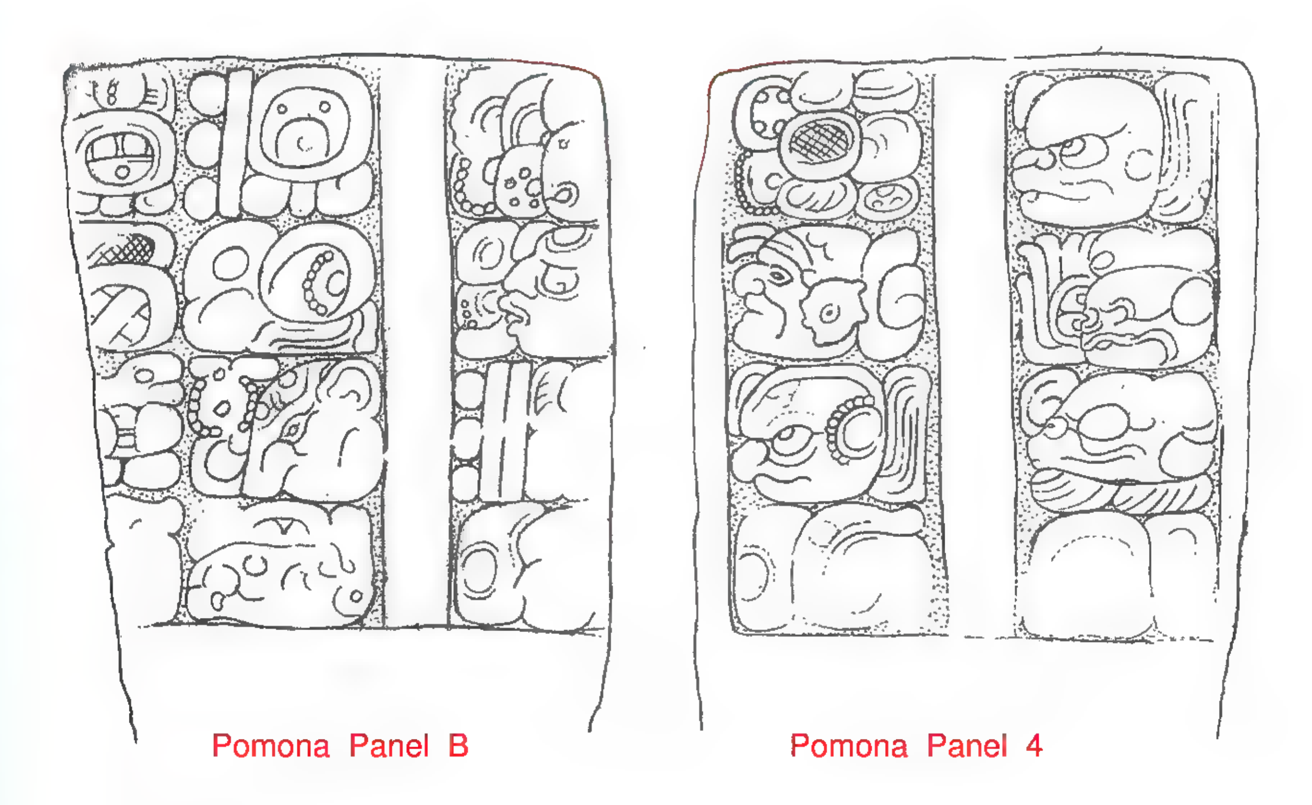
Pomona Panel 5

Pomona, Hieroglyphic Panels 2 (upper) and 5 (below)

Drawings by Peter Mathews
Reproduced with the kind permission of the Proyecto Arqueológico Pomoná
Roberto Garcia Moll, Director



Pomona Panel 3

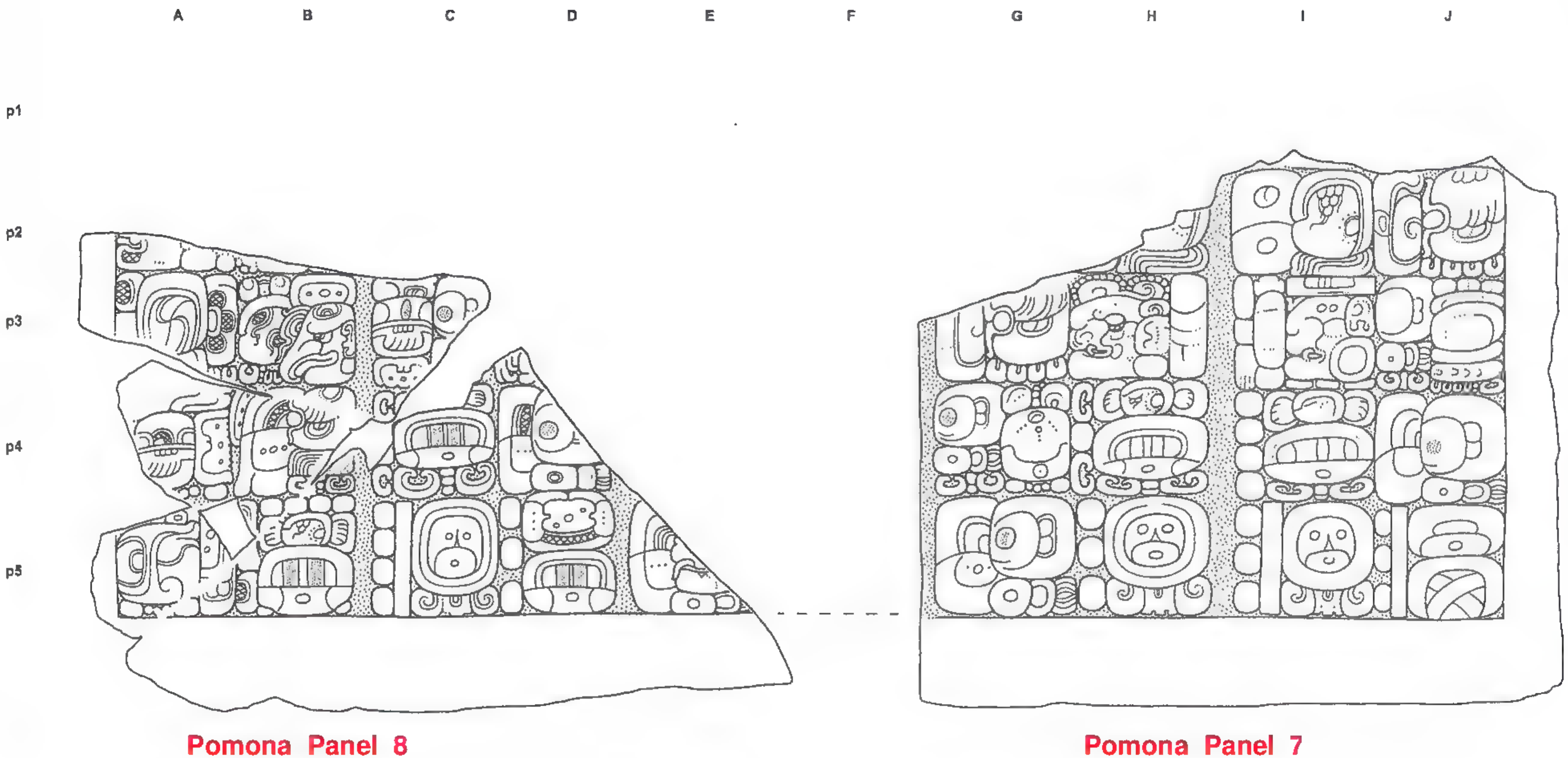


Pomona Panel B

Pomona Panel 4

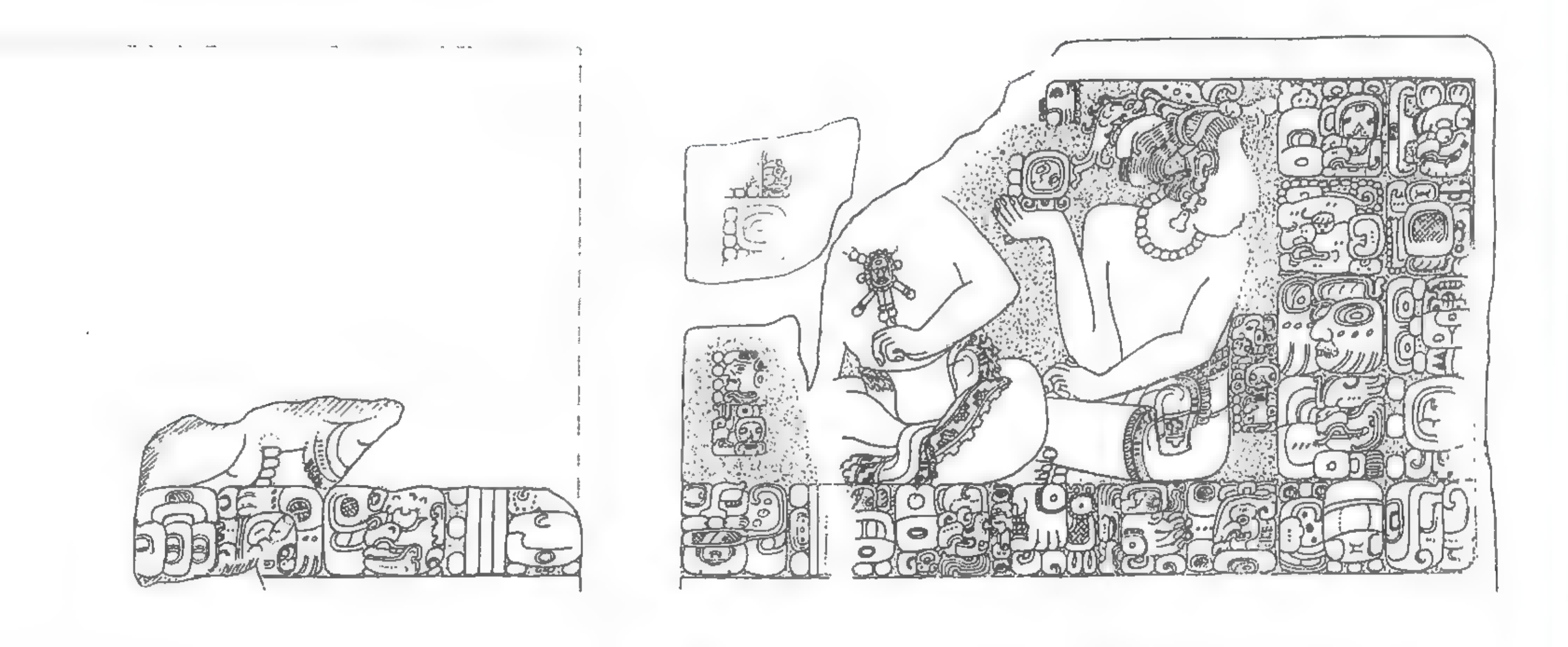
Pomona, Hieroglyphic Panels 3 (upper), 1 (lower left) and 4 (lower right)

Drawings by Peter Mathews (Panel 3) and David Stuart (Panels 1 and 4)
Reproduced with the kind permission of the Proyecto Arqueológico Pomona
Roberto Garcia Moll, Director



Pomona, Hieroglyphic Panels 8 and 7
(tentative arrangement)

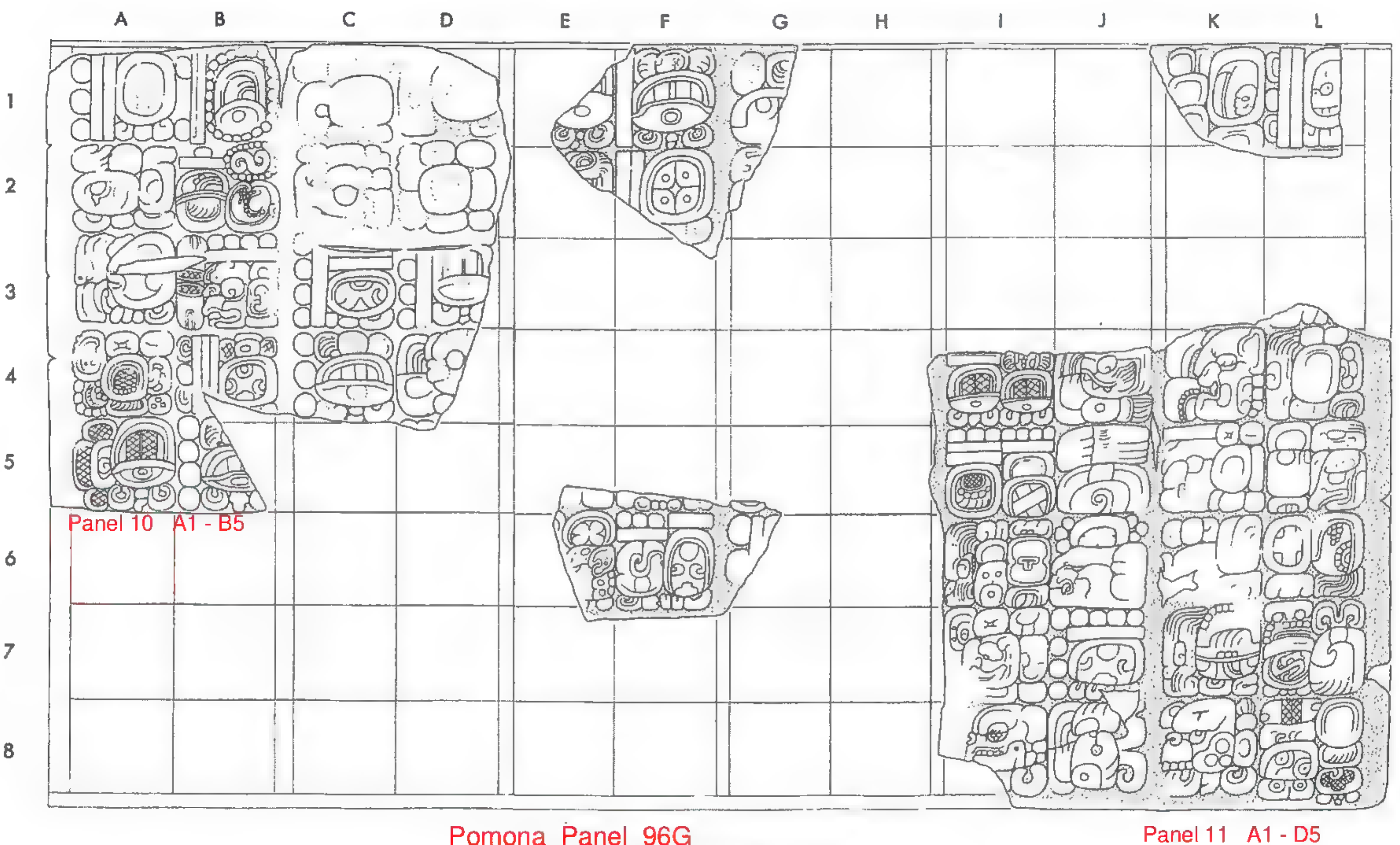
Drawings by Peter Mathews
Reproduced with the kind permission of the Proyecto Arqueológico Pomona
Roberto García Moll, Director



Pomona, Panel 1

(two halves may have flanked a central image, stairway, etc.)

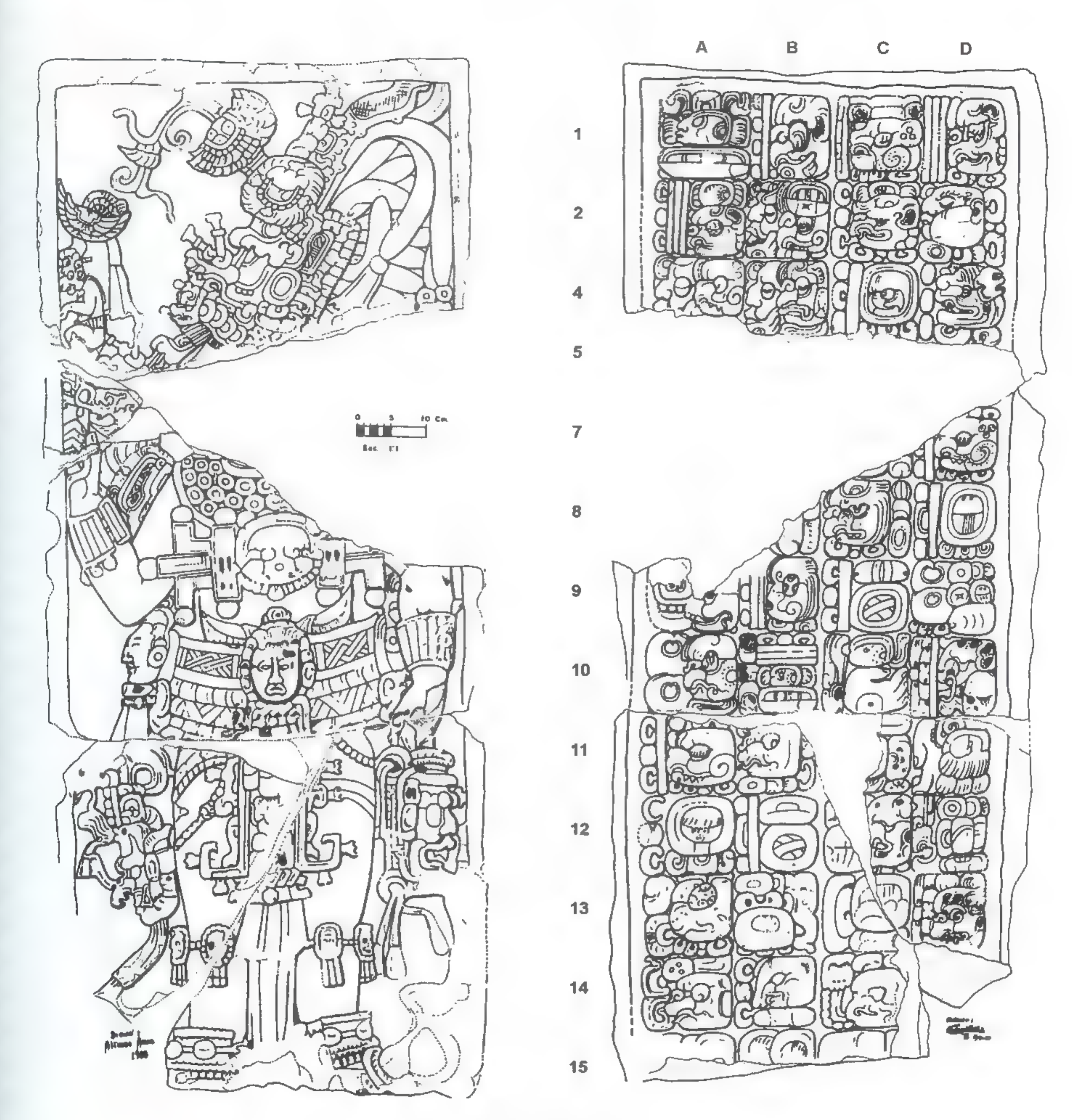
Drawings and assembly by Ian Graham, Peter Mathews and David Stuart
Reproduced with the kind permission of the Proyecto Arqueológico Pomoná
Roberto García Moll, Director



Pomona Panel 96G

Pomona, Tablet of the 96 Glyphs

Drawing and arrangement by Peter Mathews
Reproduced with the kind permission of the Proyecto Arqueológico Pomona
Roberto García Moll, Director



Pomona Stela 7

Pomona, Stela 7



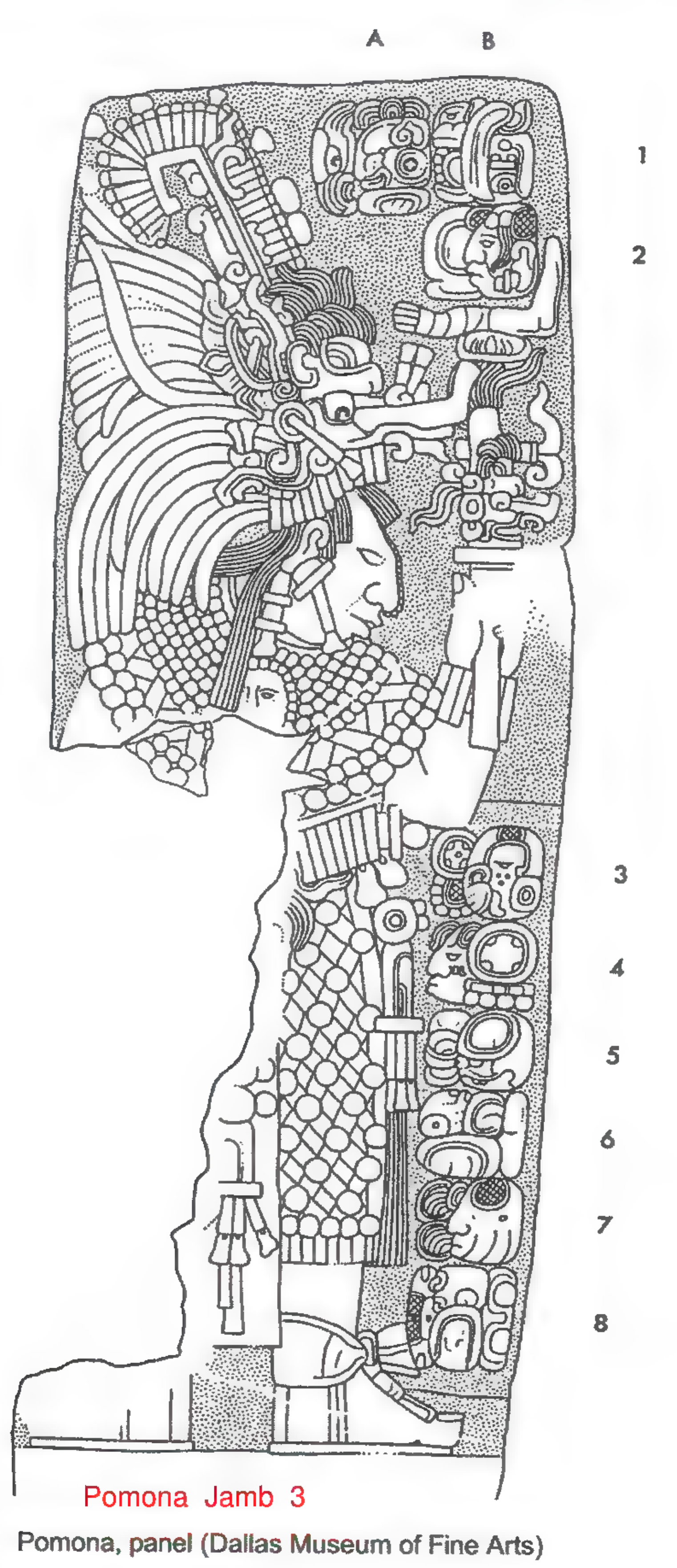
Pomona Jamb 2



Pomona Jamb 1

Pomona, Panel 10 (left and right halves)

Reproduced with permission of the
Proyecto Arqueológico Pomona,
Roberto García Moll, Director



Pomona Jamb 3

Pomona, panel (Dallas Museum of Fine Arts)

Drawing by Peter Mathews



A Brief Introduction to Maya Writing

David Stuart



I
The Cultural and Historical Setting of Maya Writing

The ancient Maya were a literate civilization. Writing was a "high art" visible nearly everywhere in the courts and palaces of the Classic period, and served as a key means for political, magical, clerical, and religious expression. The conscious display of inscriptions on permanent media tells us that scribes wanted many of their messages to be read and pondered over the long term, if not throughout eternity. They would probably be pleased to know that after two thousand years those messages have been delivered to us-- we live in a very different world but are appreciative and entranced all the same.

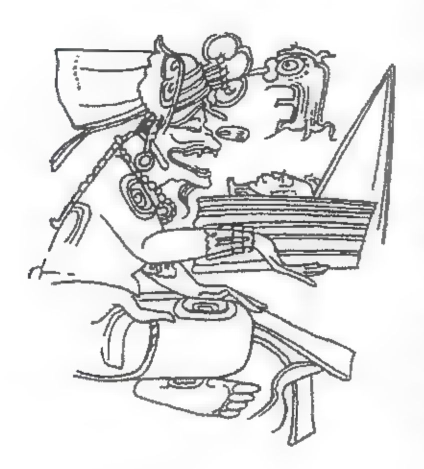
Maya hieroglyphic script has been discovered in many places, on objects as widely varied as the culture that created them: stone monuments, ceramic vessels, buildings, cave walls, jewelry, books, shells, crafting tools, bones and masks, among many other things. Generally speaking, any durable surface seems to have been written on by scribes at one point or another. A great many texts were probably once carved into wooden temple beams and lintels, but only a few scattered examples survive.

Most surviving Maya texts are on stone, usually in the form of upright monuments called *stelae* or in architectural settings such as steps and wall panels. The second most common form of extant hieroglyphic texts are inscribed ceramic vessels, either painted or carved, but the inscriptions on them are usually much shorter and narrower in scope than those found on public media.

We can be sure that, before their destruction by human agency and the depredations of time, many hieroglyphic texts existed in the form of bark paper books, coated with plaster. But only four known manuscripts survive today: the *Dresden Codex*, *Madrid Codex*, *Paris Codex* and *Grolier Codex*, all of which are Postclassic in date. These codices were handbooks and manuals for divinatory priests and other ritual practitioners, though Spanish sources from the early colonial period describe historical and economic texts as well. We can only try to imagine what other topics were recorded in manuscripts during the height of literate Maya society in the Classic period. Very occasionally, tantalizing piles of colored dust and organic material, just recognizable as former codices, are found in tombs.

The role of writing and literacy in ancient Maya society is a difficult issue. No true "scribal class" seems to have existed at any of the numerous royal courts dotting the political landscape, but each palace community had its own established painters and artisans who would also have been trained in the scribal arts. They would have been responsible for everyday record keeping and the crafting of inscribed goods such as drinking vessels and jewelry--important commodities in the elite exchange system between polities. Some scribes also would have had important roles as *ajk'inob*, "diviners", who would interpret ritual and calendrical almanacs much like the modern day-keepers of today's Maya highlands.

The common title applied to scribe-artisans was *itz'aat*, a word that survives in some modern Mayan languages with the same meaning, "artist, wise man". The *itz'aat* glyph takes the form of the scribal patron god, often shown on painted ceramics as a hybrid being, a cross between a howler monkey and a man. This god is often depicted holding or writing in a codex. The scribal deity reflects the widespread Mesoamerican



association between monkeys, crafts and the arts. Some of the *itz'aat* artists put their signatures on their ceramic paintings.

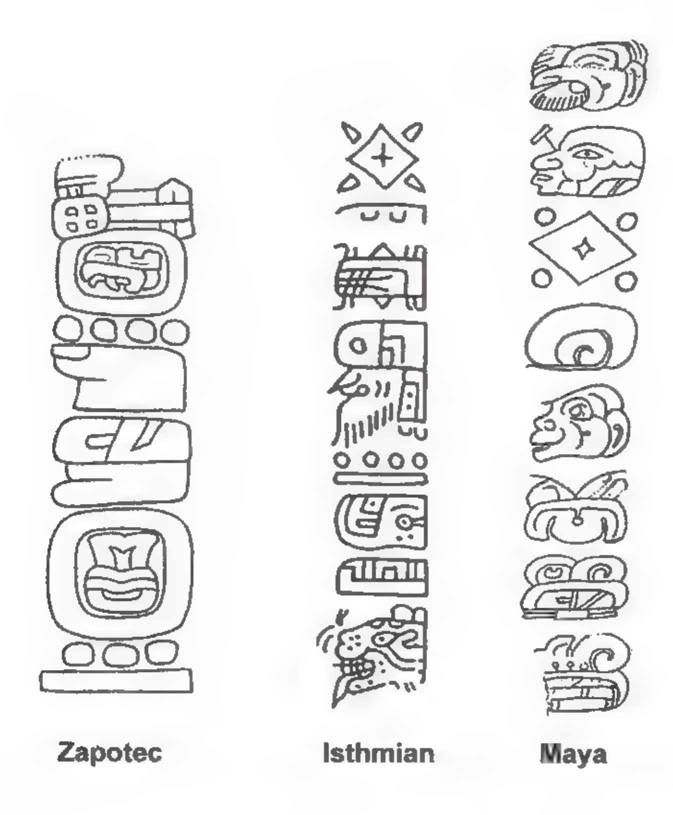
High-ranking sculptors sometimes carved their signatures into the background of stelae or door lintels in order to mark their contribution or "service" (*patan*) to the production of a royal monument. Such signed names, at times numbering as many as eleven or twelve on a single monument, suggest that literacy was a matter of pride and distinction in Maya society -- though how widespread it was, and whether it reached beyond the polished halls of the upper classes in ancient times, we may never precisely know.

Script Origins

The Maya writing system was but one part of a broad and deep tradition of phonetic script in southern Mesoamerica. Writing first made its appearance among the Olmec during the Middle Preclassic, as revealed by the astonishing discovery of the "Cacajal Block," with its lightly incised glyphs and icons, still undeciphered. Before this find, many scholars supported a later innovation of writing in what is now Oaxaca at the beginning of the Late Preclassic era, from where it spread over the centuries to the Isthmus of Tehuantepec, the Pacific slope of Guatemala, and, finally, into the lowland Maya area. In this scenario the gradual eastward movement of writing from Oaxaca to the Maya area would have come about through the adoption and localized modification of a single script tradition by speakers of different Mesoamerican languages.

However, considering how rapidly southern Mesoamerica was changing during Late Preclassic times, the adoption of writing by emerging elites probably involved a more complex process. By the early first millennium B.C., social and political structures in southern Mesoamerica were transforming from village-level systems into larger and more complicated institutions. These emerging polities traded with each other, fought each other, intermarried and interacted over the course of the next several centuries. As in the Near East and China, it was in this milieu of growing socio-political complexity and regional interplay that writing was somehow born, spread, and developed. The Olmec hieroglyphs on the Cascajal Block evidently shows an early stage of the process.

By the Late Preclassic period, around 300 B.C, or so, we can isolate three major script traditions in southern Mesoamerica: Zapotec, Isthmian (or Epi-Olmec), and Maya. All three share a distinctive look and format, making it even more difficult to discern their precise historical connections to one another. The shapes of the signs, the things they depict, and the columnar formats of their arrangement into texts seem almost identical on initial glance, although with time and familiarity the idiosyncrasies and styles of each system become readily apparent.



In addition to this visual similarity, Zapotec, Isthmian and Maya writing all share a method of recording dates in the 260-day divinatory calendar, and possibly the solar festival calendar of 365 days as well. However, only Isthmian and Maya scripts recorded the more complex system of calendrical notation known as the "Long Count," leading some to consider that Isthmian and Maya scripts are more closely related to each other than either are to Oaxacan. This seems a reasonable conclusion to draw, even simply on the basis of geographical proximity.

The script traditions are each probably wedded to particular languages or language families: Zapotec to Oto-Manguean languages historically spoken in the region, Epi-Olmec probably to Mixe-Zoquean, and Maya to (not surprisingly) Mayan. I prefer to see them as three more-or-less independent developments of writing, each specific to a certain language, and each emerging out of a far-reaching latticework of exchange, communication and shared visual culture. That historical foundation no doubt extends back to the Midlle and Early Preclassic (or Formative) periods, even though the evidence

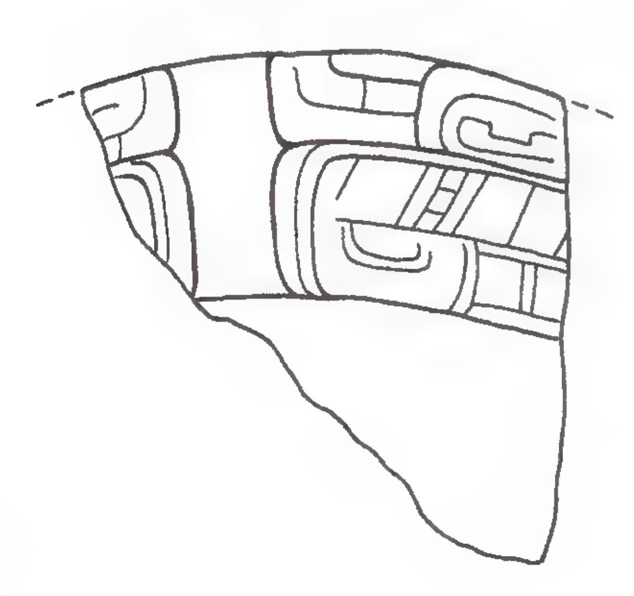
of true "Olmec" writing of that time remains sparse. The initial idea of using symbols to represent specific units of language may have spread from one area, but I sense that the actual systems of script arose largely independently, to specifically accommodate the different languages of the people who developed them.

William Saturno and Boris Beltran's remarkable new discovery (April 2005) of a very early painted text at San Bartolo, Guatemala, lends credence to this overall "coeval model." The ten surviving glyphs found thus far once adorned the wall of an elaborately painted shrine, buried deep within the later Las Pinturas pyramid associated with a set of now-famous murals. Carbon samples from this sealed environment indicate that the earlier painted building was destroyed no later than 200-300 BC, making this the earliest reasonably dated example of Maya writing yet found. Its presence in the Petén lowlands is also significant, for before its discovery it was thought that the earliest Maya writing was found at late preclassic sites in the highlands or the Pacific slope region of Guatemala. The well-developed form of this archaic San Bartolo script points intriguingly to an even earlier history in the lowlands, so far invisible in the archaeological record. No longer can Oaxaca reasonably claim priority in the appearance of full-blown writing in Mesoamerica.

1 2 3 4 5 6 7 8 9 10

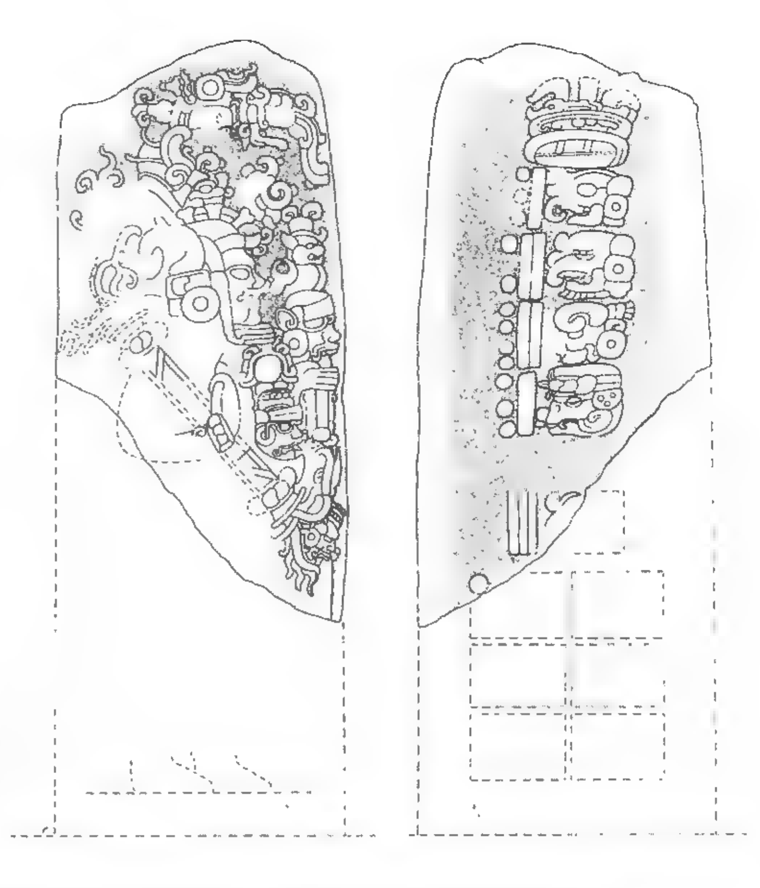
San Bartolo Stone Block Text

Those important examples of early Maya script from the highlands and fertile volcanic slopes of the Pacific coast, at sites such as Takalik Abaj, Kaminaljuyu, and Chalchuapa, probably date somewhat later, to the very end of the Late Preclassic era (100 BC - 200 AD). This area was not later occupied by the Classic Maya, but it seems to have been for a time a major participant in early Maya scribal tradition until it largely disappears by the beginning of the Early Classic



As the use of Maya script waned in the coastal area, the lowlands continued to develop it, so that by 200 AD if not earlier, the script was firmly established and widespread. One important example of early script from this time comes from a pottery sherd excavated at Tikal, dating to the Late Preclassic Cimi phase (0-200 A.D.) and bearing the incomplete phonetic elements **yu-ta-**. This must be the familiar **yu-ta-la** known from later Classic examples that helps to describe a type of cacao drink. Other glyphs of about this time, very similar in style and format, also appear on a greenstone bead recovered from the main cenote at Chichen Itza.

The earliest legible date in the Maya inscriptions (A.D. 292) appears at the large Classic period center of Tikal, on Stela 29 (at right). Other monuments are earlier, but without such a legible date. During the first half of the Classic period, inscriptions displayed a certain artistic whimsy, involving highly ornate lines and the common use of elaborate signs in the shape of ornate anthropomorphic or animal heads. This style probably carried over from Late Preclassic traditions, and is quite a contrast to the more simple abstract forms used by scribes in the seventh through the ninth centuries. It was at this time, too, that inscriptions grew in length and assumed a much more narrative character, incorporating historical and ritual information spanning many years--a trend that would find its fullest expression in the Late Classic.



In the Late Classic period, common sign forms and spelling conventions were widespread throughout the lowlands, and even in some highland sites in Chiapas. From the seventh and eighth centuries, hieroglyphic writing, along with many of the other hallmarks of elite Maya culture, spread out from large cities to more modest centers, some of them newly settled. Throughout this time the Maya script came to be an important art form in its own right, used and displayed throughout the courts of many different towns and cities as a formal means of conveying social and political status. We currently don't have enough evidence to tell us whether the script was used for more practical purposes in the Late Classic--such as for writing messages, or for tallying tribute. Still, it seems logical to assume that it was to some degree.

The widespread use of Maya writing came to an abrupt end between about 800-850 A.D., when numerous kingdoms of the southern lowlands were depopulated or abandoned, for reasons that are still debated and only vaguely understood. Although long public texts ceased to be produced, the script itself lived on in new ways. During the Postclassic era (850-1519 A.D.), scribes continued to write religious and historical material, primarily in screen-fold paper manuscripts. The best examples of these are the four extant codices mentioned above.

Tragically, the Spanish conquest wiped out the practice of Maya writing almost completely in most areas, yet it may have survived in limited form at the last holdout Maya kingdom--Tayasal (*Ta itzaj*)--up until the end of the seventeenth century.

II
The Decipherment: A Very Brief History

Paradoxically, initial scholarly curiosity about Maya writing grew alongside determined efforts to stamp out the use of the "pagan" script. Early historians of Yucatan tell us that some Spanish priests even became literate in the glyphs, in hopes that doing so would help them persuade the native elite population to become Christians.

These early efforts to describe and record the dying writing system ended up providing us with the key to its decipherment today. Particularly ironic is the fact that the work compiled under the name of Diego de Landa, whose famous book bonfire of Maya codices hastened the demise of the script, was perhaps the most crucial source of all for modern epigraphy. His encyclopedic description of Maya culture in Yucatan composed around 1560 included a confused but still pivotal discussion of the "a, b, c" used by the ancients. Though numerous scholarly works of this time are lost to us (those by Luis del Villalpando and Alonso de Solana could have been as significant as Landa, perhaps), these first ethnographers and linguists recorded information that over four centuries later would allow us to finally read the writing of the ancient Maya.

After the late 1500's, European scholarship lost sight of Maya hieroglyphs for two centuries. But with the Enlightenment and the subsequent Mexican and Guatemalan independence, came a renewed interest in the history of Precolumbian Mesoamerica and the exploration of the mysterious ruins in the jungle. The great site of Palenque, located on the edge of then-unknown forested areas of the Selva Lacandona, was visited by a number of learned travelers in the late eighteenth and early nineteenth centuries, most of whom remarked upon the unusual writing on the walls of the standing temples. One such visitor was the Spanish military officer Antonio del Río, who wrote a report on his investigations in 1787, with some of the first careful drawings of Maya writing by Armendáriz.

The same period saw the discovery of the *Dresden Codex*, the most significant of the few surviving hieroglyphic manuscripts, which was probably brought to Europe in the early sixteenth century. Both the Dresden Codex and copies of a few Palenque texts were published in the 1820s, offering scholars their first body of materials for investigation. We might recall that these were the years shortly after Champollion's stunning decipherment of Egyptian hieroglyphs, and interest in an "American Egypt" was quick to blossom.

One would-be decipherer was Constantine F. Rafinesque Schmaltz, a naturalist based in Philadelphia, who struck up a correspondence with Champollion and published several important observations on Maya glyphs. Rafinesque noted that the writing system of the Dresden and the Palenque tablets was one and the same system and that the script made use of bar-and-dot numerals. Most importantly, perhaps, was Rafinesque's insightful suggestion that this was a phonetic script in a Mayan language--a position which may not seem terribly risky in hindsight, but which at the time was bold, given the general propensity to ascribe the remains of Palenque and other ruins to wayward Egyptians or one of the Lost Tribes of Israel. Because of these observations, Rafinesque is now recognized as a major figure in the early intellectual history of Maya epigraphic scholarship.

Decades later, exciting discoveries in several libraries in Europe set the stage for further advancement of Maya studies. The most important development was the discovery in the 1860's in the Bibliotheque Nationale in Paris of a manuscript copy of Diego de Landa's *Relación* and its publication soon thereafter. Then in Germany, Ernst Förstemann, a Dresden librarian working largely in isolation, deciphered many of the numerical tables of the *Dresden Codex* (kept handily in his desk drawer!) and thereby figured out many of the complex mechanisms of the Maya calendar. In France, Leon de Rosny studied another Maya codex (which would later be called the *Paris*), and in several studies advanced the analysis of "non-calendrical" glyphs to more refined levels, using Maya dictionaries to great success.

Even with the pioneering work of these great scholars, no one could say that Maya writing was in any way deciphered, and many began to wonder if the exotic, complicated script ever would be read.

Through the rest of the nineteenth century the exploration and documentation of Maya sites continued at a rapid pace, culminating in the work of two great adventurers and photographers, Alfred P. Maudslay and Teobert Maler. Their publications at the turn of the century furnished Mayanists with excellent drawings and images of inscriptions at Copan, Palenque, Yaxchilan, Naranjo, Piedras Negras, and numerous other sites, setting the stage for the decipherment work of the next several decades. Following the footsteps of Förstemann, scholars continued to investigate the calendar and astronomy in great detail, led by the Americans Goodman, Teeple, Bowditch, and the great German Mesoamericanist Eduard Seler.

In the early twentieth century, Sylvanus G. Morley began his distinctive career as an archaeologist, adventurer, and epigrapher, through his affiliation with the Carnegie Institution of Washington. Morley set the groundwork for numerous field projects in Maya archaeology, establishing chronologies for many sites through his constant search for date-bearing inscriptions. Another major contributor of the first half of the century was Hermann Beyer, whose structural analysis of the stone inscriptions at Chichen Itzá likewise displayed a rigor and attention to detail uncharacteristic of his more freewheeling contemporaries. His French contemporary Jean Genet, a prodigy working on his own in Paris, published at his own expense several unheralded studies on Maya writing, deciphering correctly the glyph for "war" and pointing to the existence of personal name glyphs for captives in the texts of Yaxchilan. Genet might have gone on to make further highly significant discoveries, had he not committed suicide while still very young, a tragic end driven at least in part by frustration that his work was not acknowledged by the Mayanist establishment.

Morley's colleague at the Carnegie, J. Eric S. Thompson, rose to great prominence in the 1940's as a major and prolific figure in glyph studies, bringing historical, ethnographic, and linguistic sources to bear on the question of decipherment. His monumental work *Maya Hieroglyphic Writing: An Introduction* (1950) remains a standard reference, at least for its treatment of calendrics and astronomy. Following Morley's death in 1946, Thompson had few equals in erudition and productivity up until his own demise in 1975, within a year of his being knighted by Queen Elizabeth II. However, Thompson's sincere but mistaken lifelong insistence upon the non-phonetic quality of Maya writing ironically blocked progress in decipherment for decades, contrary to his own good intentions.

The 1950's saw the appearance of three people on the scene who, working independently, would advance Maya decipherment as never before. Yuri Knorosov, a young scholar in the former Soviet Union, was well versed in Egyptian glyphs, cuneiform, and other ancient scripts. He was drawn to Maya writing as well, having first seen a copy of the *Dresden Codex* as a soldier in the Soviet army, going through boxes of books obtained by the Russians during the sacking of Berlin in 1945. In 1952, Knorosov published his first analysis of Maya writing, proposing a completely novel approach based upon his understanding of Landa's old alphabet.



Landa's "abc" had long been a source of frustration for Mayanists, who had never quite understood it for what it was. Knorosov now suggested that Landa's "letras" were misunderstandings of signs representing syllables. The writing, he said, was syllabic. For almost a century up to this point, epigraphers such as de Rosny, Seler, Morley, Genet, and Thompson had attempted to forge a general decipherment from the supposition that a single sign corresponded to a single word, holding an intrinsic semantic value (what we call a logograph). As we shall see, this remains today an important operating principal of the script, but Knorosov proposed the existence of another important sign category representing pure sound, in the shape of a consonant-vowel (CV) syllable. These syllables would be combined to spell words, as in **ku-tzu**, for *kutz*, "turkey."

Knorosov's insight stands as perhaps the most important methodological breakthrough in Maya decipherment, even though at the time, the political atmosphere of the Cold War meant slow acceptance of his ideas in the West. Most of Knorosov's specific readings now appear to be incorrect, but his principal insight, the syllabic nature of part of the script, greatly illuminated the way Maya writing works as a system composed of word signs and syllables. The linguistic decipherment of Maya writing had, at least in potential, reached a new level of sophistication.

Meanwhile, in Mexico, Heinrich Berlin unassumingly produced a number of articles on the inscribed dates of Maya texts at Palenque and elsewhere, very much following the scholarship of the time. In the later years of the decade, perhaps spurred by Knorosov's provocative analyses, Berlin published an analysis of a distinctive looking glyph he called an "emblem," the main element of which varied from site to site. Palenque, Tikal, Copan, Yaxchilan, Naranjo, and other sites all had their own "emblems," leading Berlin to wonder whether this might be the first evidence of place names in the Maya inscriptions. Before this time, the vast sea of "non-calendrical" glyphs had eluded much decipherment, but Berlin's 1958 discovery was a step in the right direction.

Tatiana Proskouriakoff of Harvard University (and before that, the Carnegie Institution) was the third great contributor to decipherment at this time. She had a career as an illustrator in Maya archaeology spanning well over two decades, and worked away at the glyphs rather quietly in the later years of the 1950's. In 1960, just after Berlin's recognition of site emblem glyphs, Proskouriakoff published the greatest single article in Maya studies, entitled "Historical Implications of a Pattern of Dates at Piedras Negras, Guatemala." The key word here was "historical."

Before Proskouriakoff, no one (save perhaps poor Genet, whose writings were largely unread) had convincingly argued that the numerous Maya inscriptions contained much else besides dates, astronomical records, and perhaps a few ritual commemorations. Proskouriakoff changed all of this when she proposed that the texts at Piedras Negras contain the personal names and significant events in the lives of seven rulers whose reigns spanned nearly two centuries. Her article's persuasive simplicity left few doubters, and the historicity of the ancient Maya was confirmed.

Following these paradigmatic turnarounds of the 1950's, the next decade found steady but relatively quiet advances, with Proskouriakoff shifting her historical work to Yaxchilan, the results of which were published in a two-part study. Berlin also refined his work at Palenque, now recognizing a series of Late Classic kings. David Kelley, an American epigrapher, applied the historical method to the study of Quirigua's inscriptions, and offered important support to Knorosov's methods within the English-speaking community (Thompson and a few others would never accept the syllabic nature of the script). It was at this time, also, that the documentation of Mayan languages expanded greatly through the efforts of numerous linguists at the University of Chicago and elsewhere. Vocabularies and grammars of the previously obscure Ch'olan sub-group of languages became more widely available, a trend which happily continues to the present day. In the late 1960's, British photographer and explorer Ian Graham founded the *Corpus of Maya Hieroglyphic Inscriptions* project with the aim of documenting through drawing and photography all extant inscriptions on stone. Graham and his assistants' published and unpublished drawings of texts would soon prove to be instrumental to epigraphy in the 1970's, as they made it possible for more and more inscriptions to be studied and compared. (The Corpus project continues to publish new drawings, and an on-line outlet is presently in the works).

The 1970's also saw the further dissemination of photographs and drawings of polychrome ceramics bearing hieroglyphic texts. Justin Kerr developed a landmark method of innovative "rollout" photography that displayed each ceramic vessel in its unbroken entirety, allowing vessel texts to be studied with relative ease. Michael Coe was the first to begin a systematic study of this genre, and today a considerable portion of the known Maya corpus of texts comes from ceramics, most without archaeological provenance but nevertheless essential for study.

With the compilations and publications by Graham, Kerr and others of a critical mass of hieroglyphic texts, renewed intensity came to Maya epigraphy in 1970's, centering largely on Palenque and the collaborative work of Floyd Lounsbury, Peter Mathews and Linda Schele. The expansion of research to many new sites such as Copan, Chichen Itzá, Dos Pilas, Seibal and Caracol brought other young scholars into the mix, who refined many of the methods of decipherment and the present understanding of the nature of the script. One of the major new contributors to the glyphic database at this time was Barbara Fash, who produced many careful renderings of Copan sculpture, including the inscriptions on the famous Hieroglyphic Stairway.

At last, the true nature of the script made itself apparent in the years between 1975 and 1995. In these decades, decipherment picked up momentum and never stopped until Maya writing at last became not only readable, but quite well understood. In the early days (the late 1970's and early 1980's) I was privileged to be a part of the intellectual community that included Schele, Lounsbury, Mathews, and Justeson. Together we

hammered out many of the essential sign substitutions, variant forms, and the inner workings of the "code." Some of the scholars working on the decipherment problem at the time were facilitators and synthesizers rather than nuts-and-bolts epigraphers; some made numerous decipherments that were in the end invalidated (for example, very few of Linda Schele's proposed decipherments have stood the test of time); yet all made their own important contributions to the process of discovery. Stephen Houston, then a graduate student at Yale under Mike Coe and Floyd Lounsbury, became a seminal contributor in the early 1980's, proposing several decipherments, figuring out substantial new substitution sets, and reconstructing dynastic sequences at Caracol and Dos Pilas; we have been close collaborators ever since. Around this time Barbara Macleod, working from Austin, dove head-first into the difficult grammatical questions that were just beginning to be discerned in the 1980's, and has never looked back. My own 1987 publication "Ten Phonetic Syllables" presented a number of new sign values and decipherments, and helped to establish the basic assumptions of epigraphic methodology used today.

The closer integration of field archaeology and epigraphy created an exciting new dynamic in the late 1980's. In my own experience, the Copan project was the center of much of the action. William Fash was conducting his architectual project in the main area of the ruins, and invited Linda and me to Copan in 1986 to help with the initial assessments of the Hieroglyphic Stairway. I fondly remember my first two or three seasons of intense fieldwork at Copan, up to 1989, as perhaps the most intellectualy exciting of my career in Maya glyphs. Copan's many inscriptions, well-preserved and notoriously complex, presented a treasure trove of new patterns and decipherments to ponder and propose. The complexity of Copan's glyphs revealed many obscure workings of the writing system to me that I couldn't have figured out anywhere else. One of the most important outcomes of the 1980's Copan experience was when I discovered that monuments of all sorts had proper names. (In one humorous instance, when I briefly and mistakenly thought the Maya referred to stelae as "trees," I commented to Linda Schele one evening from the top of Temple 11, "Look at it, Linda--it's like a forest of kings.") As a result of this discovery, Stephen Houston and I figured out names of many geographical places such as Palenque and Copan, which allowed many historical deductions to be made. I found the names for stelae, altars, buildings and sites across the Maya landscape, quickly realizing that the ancient Maya were fond of labeling the world around them with glyphs. It was a very productive time for me, and for Maya decipherment in general.

In Europe, Nikolai Grube soon deciphered such glyphs as "dance" and "to erect (a monument)," after his important insights into the ways Maya signs and spellings graphically evolved over the centuries. Simon Martin soon emerged in the early 1990's as a trailblazing Maya epigraphic scholar with his ability to discern historical patterns in the inscriptions and connect them with iconography, illuminating (among many other things) the shifting nature of power relations among Late Classic kingdoms and working out the dynasty of Calakmul.

Throughout these few decades, this growing network of active, bona fide epigraphers exchanged ideas and mutual input which culminated in many individual decipherments and advanced our general knowledge of the Maya more than it had advanced in the entire preceding century of scholarship.

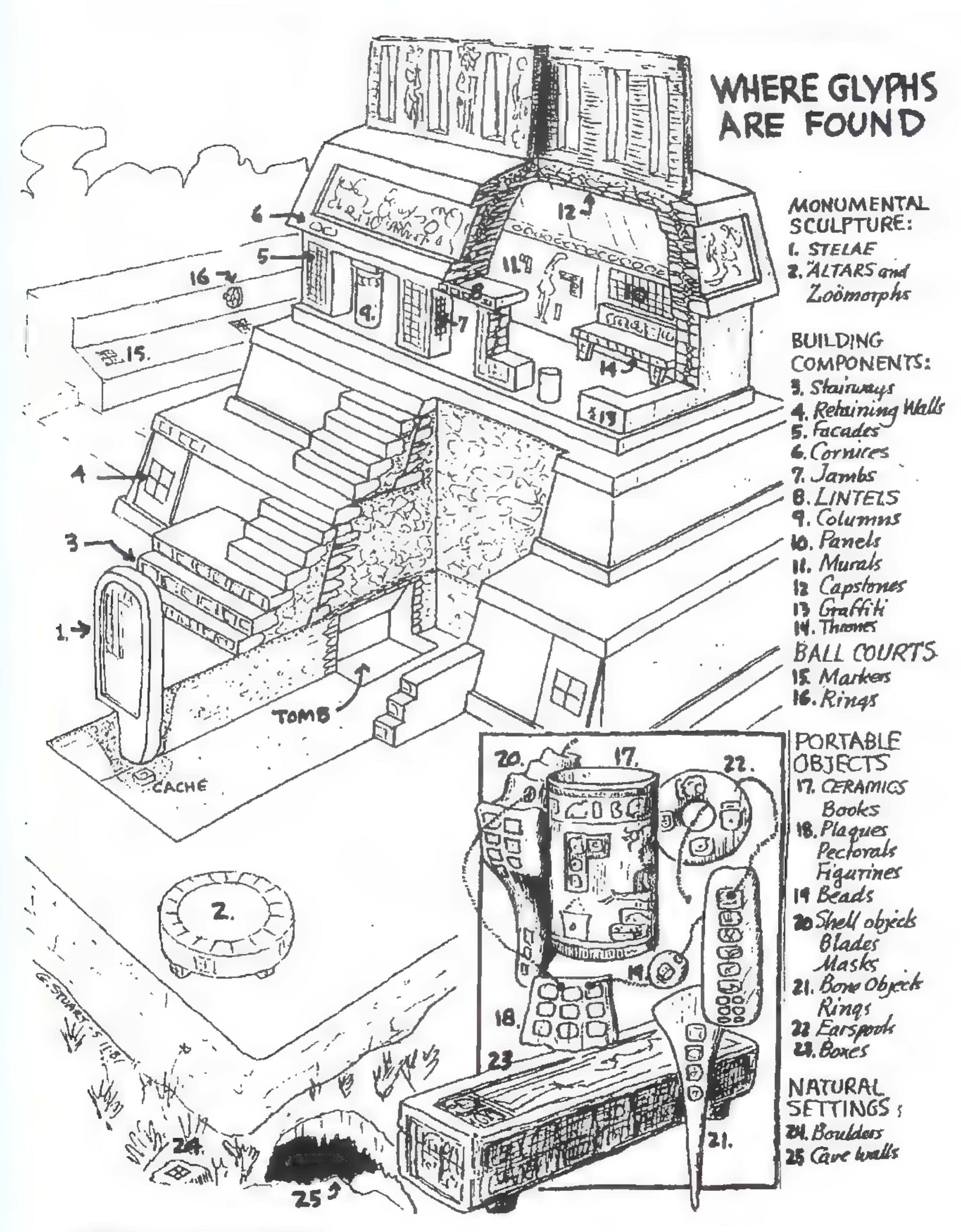
With the basic structure of the script well understood by about 1990 or so, it was natural that linguistics emerged as a major field of discussion and debate at that time-- a trend that continues to this day. The remarkable sensitivity of Maya writing in its representation of language meant that scholars could finally engage in the proper study of linguistic detail and nuance. Whereas earlier efforts bravely tried to tackle issues such as verb derivations and pronominal systems, many were premature.

Over the last decade, with the structure of the script firmly anchored, attention shifted more to the fascinating linguistic data suddenly made available. Today the language of the inscriptions is well understood, but a number of debates are still continuing about the fine points. The current success of decipherment can perhaps be appreciated by the realization that a lexicon of attested terms now contains hundreds of entries; two decades ago there were only perhaps 50-75 identifiable words.

What lies in the future? It is clear that learning Maya hieroglyphs and the language they recorded will become as essential a part of academic training in Maya studies as learning to read Latin is for historians and archaeologists of ancient Rome. Maya epigraphers still have plenty of decipherment left to do; but now we can only make new readings in the context of a sophisticated knowledge of ancient Maya culture and history.



Harvard mini-conference, 1984. From left: Floyd Lounsbury, David Stuart, Peter Mathews, Linda Schele and John Justeson. Photograph by Ian Graham.



drawing by George Stuart

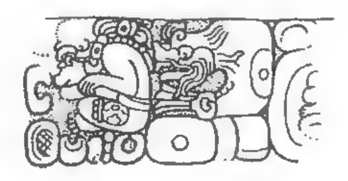
III
The Workings of the Script

The look and feel of Maya writing is closely related to the broader conventions of Maya art and the canons it used for presenting the two-dimensional form. To write glyphs, one must of course also draw, and it is not too surprising that the Mayan word *tz'ihb'* can mean both "paint" and "write," as it evidently did in ancient times.

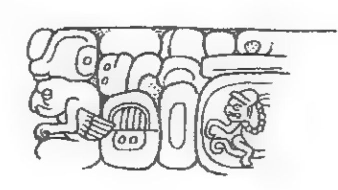
The basic unit of the script – the individual building block of a text – is the single *sign*. A great many signs of the Maya script have a pictorial quality, representing any number of things, such as animals, humans, body parts, gods, and inanimate objects. We see this pictorial quality even in the latest examples of the writing system, and it appears to have been a conservative feature of the script overall. However, the pictorial source of many other signs can't be easily recognized, although it is reasonable to suppose that they originally derived from pictorial representations, even in the most abstract-looking cases.

The complex graphics of Maya writing might appear chaotic to the untutored eye, but the script and its presentation were governed by a rigid and logical system. Single signs were usually represented within a rounded square or rectangular shape to which other signs (affixes) could be easily attached. By perusing many of the glyphs illustrated in these pages, one can begin to absorb the look and feel of signs and how they articulate.

Animal heads and other complex images were often constrained by the spatial limitations of the sign, but now and then a scribe could make use of fuller representations we call full-figure glyphs. Many signs representing animate beings were written in this fashion. When combined with other glyphic elements, the result may seem at first glance like nothing more than a tangled mass of lines. However, upon further study, the image will resolve itself into a lively scene of interacting individuals, as seen in the accompanying drawing of an inscribed altar from Copan (from the so-called "Corte Altar").







The inscription on the Corte Altar from Structure 10L-19, Copan (drawing by D. Stuart)

This and other Maya texts are composed of squared *glyph blocks* usually arranged in either linear or grid-like patterns. These blocks are the visual "fields" within which individual signs are grouped--usually two, three or four at a time. Often the blocks correspond to semantic or syntactic units, such as a date, a verb, a name, a particular honorific title, and so forth.

Signs within the glyph blocks necessarily assume a roughly square or rectangular shape. This means that complicated signs such as heads of animals, people, gods, body parts, or various objects of daily life must all still conform in their general outline to the dictates of the blocks. These signs are all carefully arranged within a glyph block so that the elements are read from left-to-right and top-to-bottom, with faces oriented to the left, counter to the direction of reading.

Sign Typology and Phoneticism

Perhaps the most basic principle of the Maya writing system is that all of the 800 or so signs were phonetic. There were no ideograms, or signs that held intrinsic meaning without a sound or word value. Signs could be classed either as word signs or as Consonant-Vowel syllables (hereafter called "CV syllables"). Word signs (signs that correspond to individual spoken words) are called *logographs* or *logograms*, and are the most common type of sign in the Maya script. Logograms are usually noun or verb roots, from which more complicated forms can be derived. Some examples of logograms are the signs for **OTOOT**, "house," **CH'EEN**, "cave," **WITZ**, "hill," **AJAW**, "lord," **K'UH**, "god. holy thing," **SAK**, "white," **CHUM**, "to sit," **PUL**, "to burn, "**K'UK'**, "quetzal," and **B'AHLAM**, "jaguar."

Ancient scribes paid very close attention to the sound values of the signs they used, and took care not to confuse words that were semantically similar. For example, the "house" glyph depicting a thatched structure atop a platform was always read **OTOOT** (or its early form **ATOOT**) and never **NAAH**, another common word for "house, structure," spelled with yet another sign. The phonetic value of a sign could even sometimes overrule its visual meaning, as in the use of the sign for "sky" (*chan*) in writing the number "four" (also *chan*). This playful sort of rebus writing was used from time to time, but it was not altogether common.

Logograms account for the majority of signs in the script. CV syllables, while somewhat less frequent, were used to record the language and its grammatical and phonological fine points with remarkable precision. This has paved the way for the detailed linguistic work now being undertaken in Maya epigraphy.

Syllables

As we saw in the last section, Yuri Knorosov's contribution to decipherment was the recognition that some signs held a purely phonetic role in the script as CV syllables, used to spell words or morphemes. For example, he showed that the **k'u** sign (derived from a representation of a bird's nest, *k'u*), when doubled, spelled *k'uk'*, "quetzal." Other

examples of syllabic combinations that Knorosov noted include **ku-chu** > *kuch*, "burden," **b'u-lu-ku** > *b'uluk*, "eleven," etc.

There are a large number of syllabic spellings in Maya inscriptions, demonstrating the basic validity of Knorosov's overall approach. Today, we have identified many more CV syllables, as represented in the syllabic grid accompanying these pages, but a few have yet to be identified securely. A selection of examples will give a good idea of how syllables combine to spell words:


la-ka, *lak*, plate, dish


ma-ka, *Mak*, a month name


te-ma, *teem*, throne


wi-tzi, *witz*, mountain


mo-o, *mo'*, macaw


k'a-wi-la , *K'awiil*, a deity


pu-tz'i, *puutz'* needle


yo-to-ti, *y-otoot*, his/her house

Some syllabic signs are actually straight vowels such as **a**, **o**, **u**, etc. The repetition of a vowel after a syllable produces a glottal stop, as in **mo-o**, for *mo'*, "macaw", and **k'a-b'a-a**, *k'ab'a'* "name".

The "macaw" example raises an interesting issue about the relationship between logograms and syllables. The **mo** sign surely derived from the representation of a macaw's eye, as is clearly indicated in fuller macaw head signs and representations. Obviously early scribes, when determining how to write the sound **mo**, simply chose to take the *mo'*, "macaw" as a base, and make it more visually abstract. We see that a number of other syllabic signs were derived from recognizable words and their logograms:

chi < **CHIJ**, "deer"
b'a < **B'AAH**, "gopher"
ne < **NEH**, "tail"
tzu < **TZU**, "gourd"

There is also a historical context to keep in mind. The gopher head for **b'a** is a late usage, generally used only in the Late Classic period; its origin is clearly a logogram **B'AAH**.

Synharmony and Disharmony

When Knorosov posited the syllabic nature of some Maya glyphs in the codices, he noted that a good many combinations followed what he called a rule of "synharmony." That is, spellings tended to group together CV syllables sharing a common vowel, as in **ma-ka** for *Mak*, a month name, or **ku-chu** for *kuch*, "burden, cargo." It was clear even to Knorosov that not all spellings neatly followed this pattern: **mu-ti** for *muut*, "bird," shows an obvious disharmony between the vowels of its constituent syllables. *Muut* is a common word in ancient Maya texts, but it is simply never spelled ***mu-tu**. Likewise, in the Classic texts **a-ku** is the customary spelling of *ahk*, "turtle," not **a-ka**. What explains the variation?

In 1997, I reasoned that this probably had something to do with the length of the internal vowel of the root. After a few email exchanges, Stephen Houston and John Robertson and I quickly put together a list of the different spellings, and the pattern generally seemed to hold that synharmonic spellings cued short vowels, while disharmony tended to appear in spellings where the internal vowel was long or preceded an "h" (we called this type of vowel spelling "vowel complexity").

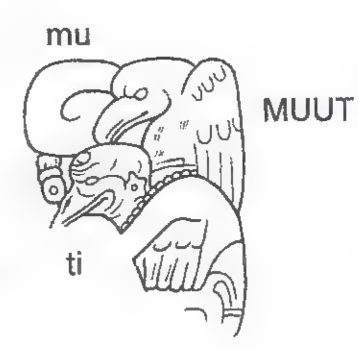
Interestingly, there are several exceptions to this pattern--examples which at the time made me hesitate to make the suggestion that vowel complexity was marked in the script. But these turned out to be exceptions that proved the rule.

The key to these exceptions was to be found in the history of spoken Maya languages. Through the centuries, vowel length has tended to disappear from spoken lowland Mayan. Thus, we correspondingly find in the script that the exceptions to standard disharmony occur very late in the Classic period, after about 700 A.D., and it

stands to reason that the scribes of this time began to disregard a spelling rule that had by that time had little real basis in their everyday speech. By tracing the loss of disharmony in the spellings of the Classic period, we are actually witnessing the direct evidence of language change in antiquity.

Phonetic complements

Scribes could also easily combine logograms and syllables to spell words. *Phonetic complements* are syllabic signs attached to word signs that signal the phonetic value of the word sign. Put more simply, they serve as clues to the reader about the sound of the word sign. Many phonetic complements appear in final position as a suffix as in **K'IN-ni**, **TUUN-ni**, **PAKAL-la**, **LAKAM-ma**, **CHUM-mu**. Although they are more rare, some phonetic complements appear solely in initial position as a prefix, as in **ma-MAK**, **wi-WITZ**, **ti-TIHL**, and so on. Sometimes we encounter both kinds of complementation on a logogram, as in the two examples illustrated at right, **mu-MUUT-ti** (*muut*, "bird"), or **wi-WINIK-ki**.





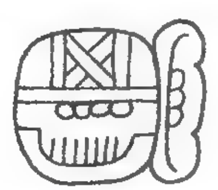
Over the course of the Classic period, scribes tended to "fuse" common phonetic complements onto certain logograms. The –**ni** sign is especially common on **K'IN** and **TUUN**, for example, and seems to have been automatically attached by some scribes.

Some Basic Graphic Principles

Sign Substitution

The designers and practitioners of Maya writing were never pleased with the idea of a simple and limited repertoire of signs. Instead, any given logogram or syllable sign could potentially have several variant forms, which an individual scribe could use seemingly at any time.

Consider the following three glyphs. These all freely substitute in the name phrase of a king from Copan, and spell the word *chan*, in this case meaning "sky".

The first glyph is the standard "sky" logogram (**CHAN**) with a –**na** phonetic complement. The second glyph shows us the avian head variant of **CHAN**, also with the –**na** suffix. In the third, the scribe chose to replace "sky" with a snake's head, also pronounced **CHAN**. The homophony of the sky and snake signs allows for them to freely substitute. Adding another layer of complexity, Maya scribes also could play with

the form of the –**na** phonetic complement, the head variant of which is a profile human head. Compare this **CHAN-na** form to the third example above.



Not only do variant signs substitute for one another; often we find single words spelled with either a logogram or a syllabic sequence. For example, consider the replacement of the **KAB'** ("earth") logogram with **ka-b'a** in the following comparison.



U-TAL?-KAB'



U-TAL?-ka-b'a

The principle of sign substitution is one of the most difficult for a student to grapple with, and it usually takes a good deal of time to become aware of the main equivalent forms. Probably the most extreme display of sign substitution can be found in the spelling of the simple verbal root *uht*, "to happen." This is an extremely common word in the hieroglyphic texts, spelled **u-ti**. But notice how in the accompanying illustration, we see up to five different **u** signs, including alternative head variants, and a **ti** with its own vulture animated form (seen also in the spelling **mu-MUUT-ti**, above). These are all utterly equivalent spellings of **u-ti**:







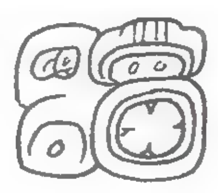


It's enough to make your head spin, but a long and steady analysis of the drawings reveals that a true system is indeed at work. In fact, the new logo for the Maya Meetings (on the cover of this book) is still another variant of **u-ti**, but this time making use of a full-figure **u.** Understandably, the ubiquitous use of sign substitutions by scribes added several frustrations to the long process of decipherment in the last century.

Thus far we have seen how sequential signs combine with one another in fairly straightforward ways. Now we need to look at some common ways that scribes combined signs which may not seem quite so straightforward. To do this, we will touch on four separate principles of sign combination: *infixation, conflation, superimposition,* and *doubling*.

Infixation. Where one sign is reduced in size and inserted within another. For example:






Conflation. Where two signs are visually fused, each retaining its same relative size. Often this is done with animal or bird heads, as with the quetzal and macaw, but it can also be done with more abstract elements.






Superimposition. Where one sign partially "hides" behind another, or overlaps visually.






Doubling. Where a scribe opts to write a repeated element simply by marking it with two small dots, usually in the upper left or right corner. For example, in the example illustrated at right, seemingly just **tz'u-nu**, the two small dots at the upper right tell the reader to double the pronunciation of the **nu**, to produce **tz'u-nu-nu** for *tz'unun*, "hummingbird."



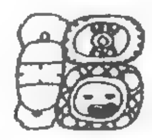
Finally, an extreme example of playfulness in sign combination comes from a panel from Bonampak, where conflation, infixation, and superimposition all play a role in the sequence **a-na-b'i ch'a-jo-ma**, two personal titles. See if you can spot the elements "blended" in the second example below:




What's in a Name? A Case Study from Palenque

Decipherment, like any code breaking, consists first and foremost of discerning patterns in how signs are used and distributed. When sign sequences are isolated as meaningful units (such as a ruler's name, for example), the internal variation within the set usually tells us a great deal about the phonetic values of logograms in addition to other basic clues to decipherment.

An excellent case study of alternate spellings and sign groupings is the name of the most famous king of Palenque, *K'inich Janab' Pakal*. The core elements of the name are the second and third words (*Janab' Pakal*) to which was added the honorific title *K'inich*, "Great Sun." *Janab'* is still difficult to translate, although it may have been a name for a species of raptorial bird. The familiar word *pakal* means "shield." At present then we can partially translate the name as "Great Sun ? Shield." Study the following examples closely, and you will absorb a good deal about how Maya scribes wrote, and how modern epigraphers analyze texts.

(1) K'INICH-JANAB'-PAKAL 

In the most straightforward presentation of the name, we find three logograms presented in one glyph block. Reading from right to left and top to bottom, these are **K'INICH**, **JANAB** and **PAKAL**. From here, our comparison gradually gets more elaborate.

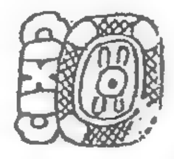
(2) K'INICH-JANAB'-PAKAL-la 

Here the grouping of signs is very similar, although arrangement is somewhat different, with the **JANAB'** now beneath the **K'INICH**, and the **PAKAL** sign taking up most of the right half. Now, however, we find the insertion at the very end of the syllabic sign –**la**, an optional phonetic complement to the word sign **PAKAL**, providing a clue to the logogram's pronunciation.

(3) K'INICH-JANAB'-pa-ka-la 

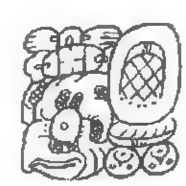
Now we see the name spelled very differently. In place of the **PAKAL** logogram, the scribe, never able to leave well enough alone, has opted to write the three syllables **pa-ka-la**. Note that the final –**la** looks somewhat different, but it is a variant of the "doubled" –**la** seen in (2). The **K'INICH** also has a slightly more elaborate form, but it is a variation on the same element.

(4) **K'INICH-JANAB'-PAKAL**



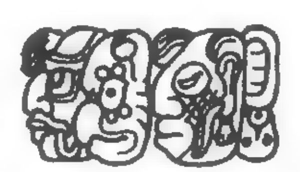
This form of the name is perhaps the most common and recognizable found in Palenque's inscriptions, but it stymied epigraphers for some years. It was not until the 1980's that we recognized the "main sign" was actually a fused glyph displaying features of both **JANAB'** and **PAKAL**. This is a fine example of conflation, a common means by which scribes could combine signs, especially ones that had some intimate connection to one another. For a time, however, it was thought that the "propeller" element was integral to the **PAKAL** sign, while actually it is the central marker of **JANAB'**.

(5) **K'INICH-JANAB'-pa-ka-la**



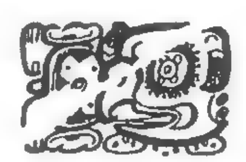
Now we have a bird's head added to the mix. This is the alternate "head variant" of **JANAB'**, and one can see the simple replacement when comparing this to example (3). In truth, the bird is probably the full form of the "propeller-with-dots" form of **JANAB'**, which now can be seen to be the distinctive bird's eye. This *pars pro toto* principal was important in the scribal rendering of head glyphs of animals and deities.

(6) **K'INICH-JANAB' pa-ka-la**



Here we find new animated forms of two signs. The **K'INICH** prefix is now the sun god's head in profile, before the **JANAB'** bird. In the next block, **pa-ka-la** is spelled with the head variant of the **pa** sign, a human head with internal cross-hatching.

(7) **K'INICH-JANAB'-PAKAL-la**



The **JANAB'** bird head now dominates the single block grouping, with the **PAKAL** shield dramatically reduced solely to the decoration around the bird's eye. In essence the scribe has taken the conflation in (4) and reanalyzed the form as the bird's eye, taking the shield along with it.

(8) **K'INICH-ja-na-b'i pa-ka-la** 

In (8) the number of signs has grown considerably. The middle portion of the name is now spelled with the syllables **ja-na-b'i**, with the **K'INICH** at the upper left of the first block. Notice too that the **pa** in **pa-ka-la** is again animated.



(9) **K'INICH(-ni) ja-na-bi pa-ka-la**

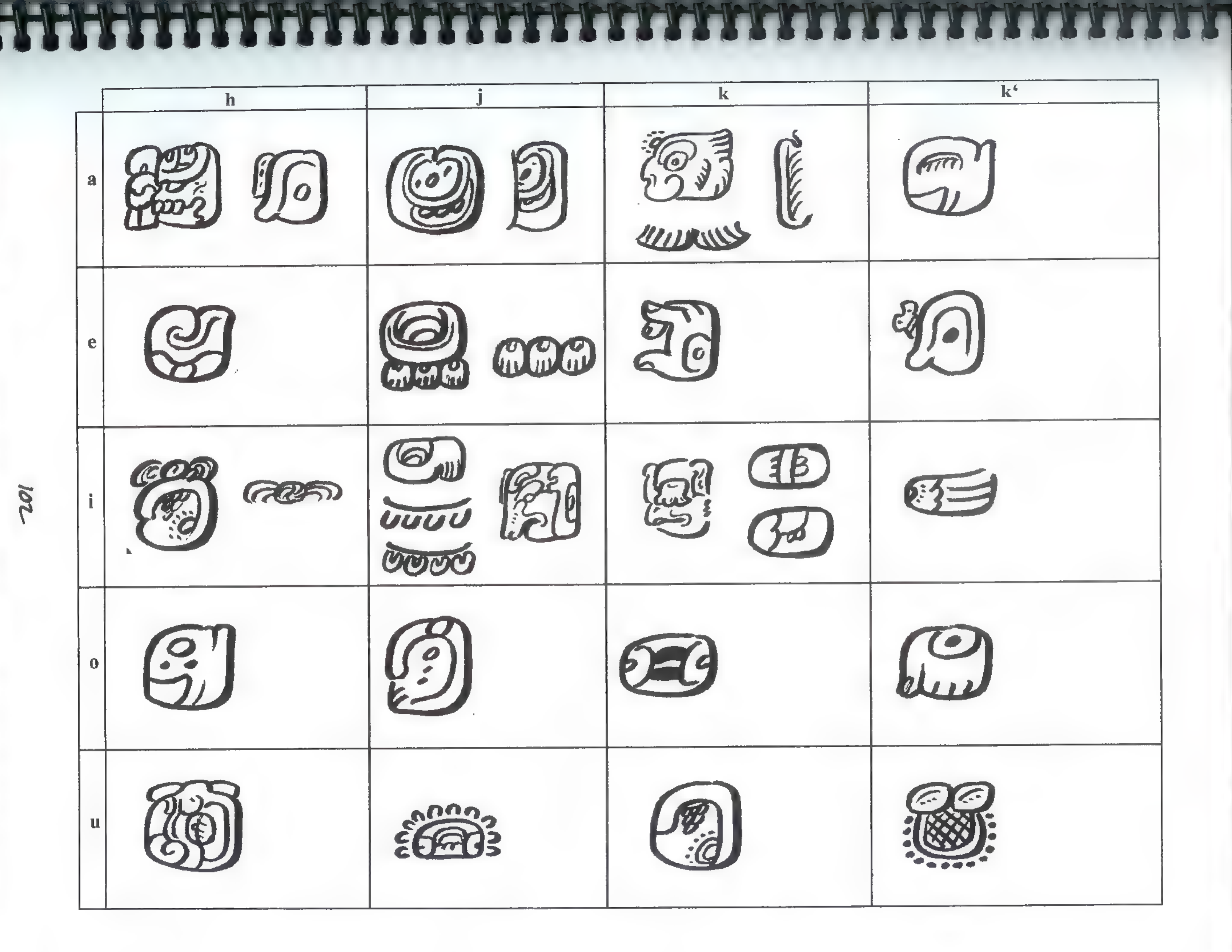
In a slight elaboration of (8), the **K'INICH** logogram is expanded into its own head variant, showing the profile of the sun deity, *K'inich Ajaw*. The **–ni** suffix may seem strange here, but it is best thought of as intrinsic to the **K'IN** of *K'inich*; it is not read in final position.

(10) **K'IN-ni-chi JANAB' pa-ka-la**

And finally, the honorific title *K'inich* takes on its own syllabic complements, here as **K'IN-ni-chi**. The **K'IN** has been infixed within the chi hand, and the entire block takes the **ni** suffix, even though this does not truly reflect the reading order. To confuse matters somewhat, in other examples the same grouping of elements can be read as **chi-K'IN-ni**, for *(o)chik'in*, "west." Here context establishes the proper reading.

Note: the transcription **JANAB'** is open to question. Some prefer **JANAAB'** or **JANAHB'** or **JANIB'**, but because the term remains undeciphered, I prefer to keep the phonetic analysis as simple and non-committal as possible. One would think that *janab'* or some similar word is the name of the bird represented in the glyph, but my own survey of the lexical sources has failed to find this or anything similar. A new epigraphic find or a new dictionary entry could resolve the issue one day – stay tuned.

		b'	ch	ch'
a				
e				
i				
o			?	
u				


h
j
k
k'
a
e
i
o
u

	l	m	n	p
a				
e		??		
i				
o				
u				

	s	t	t'	tz
a				
e				?
i				
o				
u				

	tz'	w	x	y
a				
e				
i				
o				
u			?	

IV
Mayan Languages and the Basics of Grammar

Introduction

Note: This section of the Sourcebook offers a basic grammatical sketch of the language represented in the majority of Classic period inscriptions. It is a work in progress, and it will be expanded and modified in the future.

Over the last ten or twenty years, as the decipherment has steadily matured, the study of glyphs has naturally become a sub-field of Mayan linguistics. Today, in 2005, many of the pressing issues in Maya glyph research focus on the wealth of linguistic data now available from the ancient texts. A good deal of the research strives to understand these linguistic patterns in light of the long and complex history of Mayan languages and their interactions.

All Mayan languages developed from an ancient mother tongue usually called "Common Mayan" or "proto-Mayan," spoken long before the advent of Classic Maya civilization. Sometime in this distant past, two smaller language groups generally known as "Eastern" and "Western" Mayan separated from proto-Mayan. Within the Western Mayan branch there are several sub-groups, but the one of greatest interest to epigraphers is the Greater Tzeltalan family, which includes Tzeltal, Tzotzil and the Ch'olan language group, which is in turn composed of modern or historical Chontal, Ch'ol, Ch'olti, and Ch'orti. A good deal of phonological and grammatical evidence now indicates that most Classic Maya hieroglyphic texts were written in a Ch'olan language ancestral to Ch'olti (now extinct) and Ch'orti. The ancient written language was widespread and surprisingly conservative over several centuries, preserving archaic patterns that even would have sounded strange to the more varied vernacular speech heard around, say Copan or Palenque in the early eighth century. Even so, we can trace interesting changes in phonology and morphology over time.

The phonology of Mayan languages varies somewhat from case to case, but most of the Ch'olan languages of today share the following basic consonants and vowels:

Consonants

	p	*t*	*tz*	*ch*	*k*	*'*	
b'	*p'*	*t'*	*tz'*	*ch'*	*k'*	*h*	*j*
		s			*x*		
	m	*n*	*l*		*y*	*w*	

Vowels

i		*u*
e		*o*
	a	

All of these phonemes are attested in the glyphs, although /h/ and /j/ (a "soft" and "hard" h, respectively) were sometimes left undistinguished in late spellings. The apostrophes that follow

some of the consonants in the second row are used to indicate glottal stops (momentary interruptions in the airflow through the glottis, as in English "uh-oh"). The glottalized consonants such as /k'/, /tz'/, /ch'/, and so on are completely different from their non-glottalized counterparts. Thus *chab'*, "earth" or "honey" and *ch'ab'*, "fast, do penance" are separate words altogether.

In general, linguistic roots in Mayan languages are monosyllabic, such as *chab'*, "earth," *b'aah*, "body; person; self," *tz'ihb'*, "to paint; to write," *ch'oh*, "mouse." However, there are some exceptions, as in *b'ahlam* "jaguar," or *lakam*, "banner." Numerous noun and verb affixes can be added to these roots to derive new lexical units and even meaningful sentences:

k'uh-un, "to worship" (< *k'uh*, "god")
ch'ab'-en "I fast"
chu(h)k-aj "he is seized"
tz'ib'an, "written, painted"

Among the important prefixes in the inscriptions, as we will see, is the possessive pronoun for the third person, *u-*. It has many uses, but it can be prefixed to nouns to mark possession of objects:

u-k'ab' Juan "Juan's hand"
u(y)-otot xinich "ant's home" (i.e., ant's nest)

Any student of Maya glyphs will soon become well aware of the importance of possession in the grammar of the ancient texts.

Identifying the Language of the Inscriptions

Since the attempt at decipherment began a century ago, scholars argued over which language was represented by the Maya inscriptions. For over two decades now, most have agreed that the Classic texts are written in an ancestral form of a Ch'olan language, a sub-grouping under the Greater Tzeltalan family which consists today of Ch'ol, Chontal, and Ch'orti. Phonological features of Ch'olan lexemes are widely documented in the inscriptions, as in the widespread use of /ch/ as a reflex of proto-Mayan /*k/, seen in **chi-ji** for *chij*, "deer," a form that appears in no other Mayan family but Ch'olan and Tzeltalan (< proto-Mayan **kehj*). The weight of the Ch'olan evidence is undeniable, yet recently there has emerged suggestive evidence that within Ch'olan, Ch'orti and its ancestral language Ch'olti are the closest approximations of the language of the Classic inscriptions. This has come about primarily from comparative analysis of verb formations among Ch'olan languages, with Ch'olti-Ch'orti exhibiting very close affinities. That said, a deep knowledge of all known Ch'olan and Tzeltalan languages remains a key in any serious study of the glyphs.

Yukatek Mayan is today widely spoken in the upper Yucatan peninsula, and an ancestral form of it was certainly present in the northern lowlands in ancient times. Despite this, there is scant evidence that Yukatekan was widely written in the Classic inscriptions of that area. Individual words may have Yukatekan affiliations, but the grammatical patterns of the texts overall look to be Ch'olan. How to explain this? The most compelling idea is that the ancestral Ch'olti/Ch'orti language of the script was a *lingua franca* used for centuries in the composition of royal texts, even in areas where the populace did not speak Ch'olan. Moreover, at southern

sites we find evidence of archaic spellings that approximate expected proto-Mayan forms, and which may well be fossilized in the script, already centuries old at the time of their use by a Late Classic scribe.

As we now understand it (and changes are always happening in this field of study) the phonology of the language of the Classic inscriptions was:

Consonants

	p	*t*	*tz*	*ch*	*k*	'		
b'	*p'*	*t'*	*tz'*	*ch'*	*k'*	*h*	*j*	
		s			*x*			
	m	*n*	*l*		*y*	*w*		

Vowels

i		*u*	*ii*		*uu*
e		*o*	*ee*		*oo*
	a			*aa*	

Notice that the vowels are different from what we see in modern Ch'olan. In the ancient sources we find evidence of vowel length, where long and short vowels were differentiated. This is a reflection of a very old distinction in Mayan languages, and vowel length was probably on its way out in the vernacular Ch'olan languages of the time. Interestingly, many very late spellings of the Late Classic period disregard the traditional spelling conventions that marked vowel-length, suggesting that some scribes were becoming less and less wedded to archaic rules.

Noun Morphology

Noun Classes

Nouns often differ in their inflection according to whether they are possessed or unpossessed. The idea of possession pervades much of the discussion of noun and verb morphology, but for the present we can simply mention two types or states of noun stems: *absolutive* and *possessed*. Absolute nouns are not inflected for possession by a subject and they stand alone as unattributed things. Possessed nouns are, by definition, attributable to some entity outside of themselves.

In modern Ch'ol, the contrast between absolute and possessed nouns can be seen in the absolute noun stem *k'ajk'-o*, "fire," and the possessed noun stem *k'ajk'-al*, preceded by the possessive pronoun *i-*, for *i-k'ajk'-al*, "his fire." Numerous other noun stems similarly mark the absolute stem with *-ø* and the possessed stem with *-al* or some other *-Vl* suffix. Among another classes of Ch'ol nouns the reverse is true, as we see in the absolute noun stem *chich-äl*, "younger sister," which contrasts with *i-chich-ø*, "his younger sister." Another class marks both absolute and possessed noun stems with *–ø*.

In the hieroglyphic texts we can safely isolate at least three noun stem classes by looking at their absolute and possessed forms (Note that in the examples given in the following pages,

sign transcriptions are in boldface). An example of a simple noun is *k'ab'*, "hand, arm," a body-part term which never takes a *–il* or *-Vl* ending in either absolute of possessed states (the possessive or ergative pronoun *u-* will be discussed separately in the next section)·

Absolute: **K'AB'**, *k'ab'*, "it is a hand"
Possessed: **U-K'AB'** *u-k'ab'*, "it is his hand"

Other nouns show an important difference in the presence of *–Vl* only when possessed, as for example with *k'uh*, "god":

Absolute: **K'UH** *k'uh*, "a god, a holy thing"
Possessed: **U-K'UH-li** *u-k'uh-ul*, "it is his god, his holy thing"

Yet another class of noun takes a suffix in its absolute state, but is unmarked (-ø) when possessed. These are very rare.

Absolute: **tu-pa-ja** *tup-aj*, "it is an earring"
Possessed: **U-tu-pa** *u-tup-ø*, "it is his earring"

The Pronouns

Classic Mayan makes common use of two basic types of pronoun affixes that attach directly to the noun or verb stem. These are known as the absolutive and ergative pronouns, and they serve to indicate the relation of person and number to an specified thing or action (the absolutive and ergative pronouns also have parallel roles on verbs, as we will see). A third class of pronoun, the independent pronouns, will be discussed last.

Absolutive pronouns (suffix)

Absolutive pronouns in Mayan languages are *suffixed* to nouns or adjectives to express a stative assertion about someone or some thing. In a related function, the very same absolutive suffixes also serve as subject markers on intransitive verbs. They are specific to person and number. Notably (and perhaps confusingly!) the third-person singular absolutive pronoun is unmarked (-ø). Though "invisible," the third-person is by far the most common absolutive pronoun in the Classic inscriptions.

The absolutive pronoun suffixes reconstructed for proto-Ch'olan (Kaufman and Norman 1984:Table 8) are:

	singular	plural
1st person	**-en*	**-on*
2nd person	**-et*	**-ox*
3rd person	*-ø	**-ob'*

A few examples from historical and modern Ch'olan languages illustrate the roles of absolutive pronoun suffixes when they appear after noun and verb stems:

Ch'ol	*winik-en*	"I am a person"
Acalan Chontal	*Padre-on*	"we are Padres"
Ch'orti'	*ix-ch'ok-ob'*	"they are girls," or simply "girls"
Ch'orti'	*way-an-en,*	"I slept"
Chontal	*hul-el-ob'*	"they came"
Chontal	*chun-wan-en*	"I was there"

The first through third examples above demonstrate the simple use of the absolutive on noun stems. These are all stative assertions, linking the subject with the thing or quality. In the remaining examples, the suffixes appear on intransitive verb stems to specify the subject of a single-argument predicate.

The forms of the absolutive suffixes on the ancient sources are somewhat different from proto-Ch'olan, at least as far as they can be reconstructed from the epigraphic evidence:

	singular	plural
1st person	**-een*	unattested
2nd person	**-at*	unattested
3rd person	**-ø*	**-oob'*

Examples of first-person singular *–een*, second person *–at*, and third-person plural *–oob'* are quite rare. The first is often spelled with the syllabic combination in final position –Ce-**na**, as in this tentative example from a caption on a tablet fragment found at Pomona, Tabasco:



hu-le-na
hul-(i)-een (?)
I come (?)



b'a-ki
b'aak-ø
he is a prisoner



13-TUUN-ni
Uxlahuntuun-o
it is thirteen stones

The absolutive class of pronouns is not always very apparent on the surface of glyphic spellings, yet their underlying presence on both nouns and verbs makes them key in decipherment and translation.

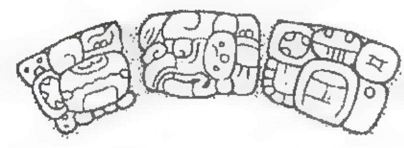
As many of the above translations suggest, noun phrases with the absolutive pronoun ending can be easily thought of as stative sentences. That is, they equate a person (suffix) with some thing or characteristic (noun or adjective stem). The propensity of third-person voice in the inscriptions makes the absolutive difficult to recognize, but by all rights it should be considered during translation.

Usually stative terms that describe a subject follow the subject's name. Many of the so-called "titles" we find in the inscriptions can be thought of as stative sentences after a fronted personal name, as in the following two cases.





po-po-lo cha?-ya b'a-ki
Popol Chay b'aak
Popol Chay, he is a prisoner



K'INICH-B'AAK-NAL-la CHAHK-ki K'UHUL-po-o-AJAW
K'inich B'aaknal Chahk K'uh-ul Po'o Ajaw
K'inich B'aaknal Chahk, he is a Holy Po'o Lord

Ergative pronouns (prefix)

The concept of "possession" is of fundamental importance in Mayan grammar, having an essential role to play in both noun and verb morphology. In their association with noun and verb stems, ergative pronouns specify a certain attribution of a thing or action to a subject. These may include simple statements of ownership or affiliation in nominal contexts, although with verbs the possessive pronoun is usually used to express the subject of transitive verbs (absolutives usually occur with intransitive stems).

The ergative pronouns of proto-Ch'olan, following Kaufman and Norman, are:

	singular	plural
1st person	**in-*	**ka- / kaw-*
2nd person	**a- / 'aw-*	**i- / iw-*
3rd person	**u- / (u)y-*	**u- / (u)y-...-ob'*

The doubled examples shown, such as *a- / aw-*, represent the pre-consonantal and pre-vocalic forms, respectively. Before vowel-initial stems, glide consonants such as /w/ and /y/ regularly serve to represent the ergative pronoun, even when the underlying morpheme is itself omitted. Also noteworthy is the seemingly aberrant pattern given in the third-person plural, where the plural suffix *-ob'* is added to the singular form.

In the Classic inscriptions -- as in Mayan languages -- ergative pronouns are ubiquitous. All of the forms reconstructed in proto-Ch'olan are attested, save the second-person plural **i-* or *i(w)-*. The most common by far is the third-person singluar **u-* or *(u)y-*, represented by two classes of signs corresponding to the pre-consonantal and pre-vocalic forms.

Pre-consonantal *u-* is written with one of a large number of logographic signs read **U-** (most of which can also serve as purely phonetic **u** in various spellings). Among the most common are these, each having some variation across time and space:



U- signs

The forms reveal that these are principally found as prefixed elements within glyph blocks, corresponding to the required position of possessive pronouns before noun and verb stems.

The pre-vocalic third-person ergative *(u)y-* presents a more complicated problem in glyphic spellings. Although *u-* is the underlying form, U- signs are never used before vowel-initial logograms -- a pattern that at once reveals the phonetic sensitivity of the ancient writing system. Rather, scribes used one of the five yV syllables to write the ergative before a vowel-initial logogram or a second syllable. For example, the syllable **yu** routinely provides the ergative pronoun in addition to the initial *u-* vowel of the following stem, as in



yu-ne
(u)y-une
he/she is his (father's) child

The four remaining yV syllable signs -- **ya**, **ye**, **yi**, and **yo** -- function in the same way, as the following cases reveal:



ya-la
(u)y-al
he/she is her (mother's) child



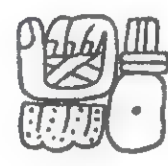
ya-AL-la
(u)y-al
he/she is her (mother's) child



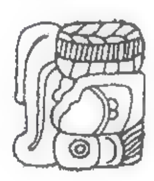
ye-be?-te
(u)y-ebet?
he is his messenger



yi-tz'i-ni
(u)y-itz'in
he is his/her younger brother



yo-to-ti
(u)y-otot
it is his/her house

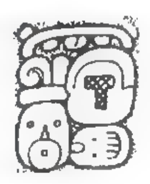


yo-OTOT-ti
(u)y-otot
it is his/her house

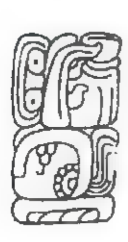
All of the nouns cited above take no suffix when possessed. Other nouns in the possessed state exhibit the suffix *-il* or *-Vl*, as in



U-K'UH-li
u-k'uh-ul-ø
it is his/her holy thing, god



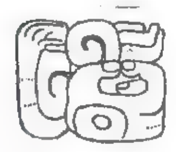
U-SAK-?-IK'-li
u-sak..?..ik'-il-ø
it is his/her white ? spirit



U-LAKAM TUUN-ni-li
u-lakamtuun-il-ø
it is his/her stela

The *-il* or -V*l* ending on possessed nouns is related to a larger class of -V*l* endings to be discussed later, and they have a number of different functions. In the examples above, the ending appears on either very general "concept" nouns ("god") or on nouns describing a class of things ("stela"), making them specific and attributable to an individual. This attribution is sometimes called a *partitive* relationship.

A somewhat different use of a *-Vl* ending is probably found on the common spatial relationship term *ich(V)n*, meaning "front." The possessed forms ("his front." or "in the presence of...") are always related to a specific person named directly afterwards.



yi-chi-NAL
(u)y-ichVn-al-ø
it is his/her front, presence



a-wi-chi-NAL-la
aw-ich-Vn-al-ø
it is your front, presence

These patterns are representative of the vast majority of possessive pronouns in the ancient texts, but, as noted, a few select texts make use of the first- and second-person as well. For the first-person singular possessive *in-* we find the sign otherwise familiar as the syllable **ni**. Here we would transcribe it as the logograph **IN-**.



IN-b'u-ku
in-b'uk-ø
it is my clothing



IN-MAM
in-mam-ø
he is my grandfather / ancestor

The first-person plural *ka-* may also be attested in examples first noted by Bricker, but it too seems extremely rare, restricted as far as I am aware to a few select cases in the late codices:



KA-ma-ma
ka-mam-ø
he is our grandfather

The second-person singular possessive *a-* or *aw-* (the latter being the pre-vocalic form) is known from a few cases in texts that, not unsurprisingly, seem to be quotations.



A-wo-la
aw-ohl-o
it is your heart



A-K'UH-li
a-k'uh-ul-ø
he is your god



A-MAM
a-mam-ø
he is your grandfather / ancestor

As with the absolutive nouns, such possessed noun stems all have an absolutive third-person suffix -ø. Clearly they too work as stative sentences, with the added significance that the referent of the absolutive pronoun, being equated with the quality or thing expressed in the stem, is in some way "possessed" or associated with another person or thing that is the referent of the ergative pronoun. The two pronouns thus operate very differently, with the absolutive expressing a coordinate relationship with the noun, and the ergative subordinating that relationship and associating it with a second argument or entity.

Note in the following important example from Piedras Negras, Panel 3, how the use of the non-third-person voice in the ergative and absolutive illustrates their very different coordinate and subordinate roles. It is a phrase apparently uttered by a royal attendant as he looks upon the enthroned ruler.



a-wi-na ke-na
a-winak-een
I am your servant

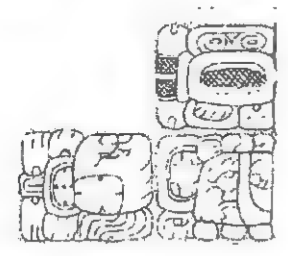
Looking first at the absolutive suffix on the noun *winak* (Ch'olti *winak*, "servant") we see the fundamental assertion is *winak-en*, "I am a servant." The ergative prefix *a-* for the second person singular places this person-equated noun within a new relationship, *viz-a-viz* a "possessor," in this case presumably the enthroned figure above the speaker.

Another example from an early inscription at Copan also seems to make use of the ergative and absolutive together



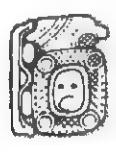
U-MAM-ta
u-mam-at
you are his grandfather

Possessed nouns are routinely related to a named or specified subject who is the referent of the ergative pronoun. The subject, the possessor of the noun, immediately follows the possessed noun phrase. Expanding on this basic structure, some quality or feature of the possessed noun can be described in a modifying word or phrase preceding the nominal phrase with its ergative pronoun:



CHAK-U-pa-ka-la K'INICH-K'IN-ni-chi K'AN-na JOY CHITAM-ma
chak u-pakal K'inich K'an Joy Chitam
Great (or Red) is the shield of K'an Joy Chitam

The appearance of two possessed noun phrases side-by-side can present some potential ambiguities in translation and grammatical analysis, but the context of the phrase usually acts quickly to dispel confusion. At times sequential possessed nouns simply list things that are together possessed by or associated with a single subject. Paired "noun compounds" such as *took'-pakal* commonly take a single pronoun, but each term within the compound can be analyzed as a separate possessed noun phrase. Compare the following, which illustrate a progression in the analysis of the phrase:



U-TOOK'-PAKAL or **U-to-k'a-pa-ka-la**
u-took'-pakal
it is his flint-knife-and-shield (it is his war)



U-to-k'a U-pa-ka-la
u-took' u-pakal
it is his flint knife and his shield (it is his war)

These are functionally identical, even though in the second case the ergative pronoun is inserted onto the second part of the compound noun. The terms *took'* and *pakal* become analyzed by the writer and speaker as separate nouns, each worthy of possession.

We can therefore say that *took'* and *pakal* work in these cases as "coordinate" nouns, both serving in relation to a single subject or possessor, named in later glyphs. However, we sometimes find that sequential possessed noun phrases are involved, where one that is subordinate to another. In these the referent of the ergative in the first phrase is the possessed noun of the second phrase, the ergative of which in turn refers to a subject named elsewhere. The first possessed noun phrase is therefore subordinate to the second. For example:



ye-b'u-li U-mu-ku-li "COPAN"-AJAW-wa
(u)y-ehb'-il u-muk-il "Copan" Ajaw
it is its stairway; it is his tomb, the "Copan" Lord > it is the stairway of the tomb of the "Copan" Lord

Note how the *-il* endings in each case attribute a general noun to something else, making it concrete and giving it an affiliation.

Independent Pronouns

In the language of the Classic inscriptions, independent pronouns were made from the demonstrative particle *ha'* before the absolutive suffix (ex. *ha'-oob'*, "they").

	Singular	Plural
1st person	*hi'n (<ha'-in)?*	unattested
2nd person	*haa'-at*	unattested
3rd person	*haa'-ø*	*haa'-oob'*

The spelling of these forms is usually the **ha** syllable (the "knot-skull" sign or an equivalent) combined with another one or two elements that spell the person marker.

For example *haa'-ø* ("he, she, it") simply adds **i** to the **ha,** sometimes as a conflation. Some late examples show **ha-a** instead of **ha-i** for the third person singular suggesting a dialect difference or, as Marc Zender recently suggested, a shortening of the vowel in what was originally **haa'-ø*.



ha-i
haa'-ø
he, she, it



ha-i
haa'-ø
he, she, it

The plural form is also common, spelled generally **ha-o-b'a**



ha-o-b'a
haa'-oob'
they, these



TA-ha-ta
ta haa'-at
to you there

Demonstrative pronouns often go before anti-passive verbs to help reiterate the subject of the action named earlier in the text.



ha-i PAS-wi ka-b'a
haa'-o pas-Vw kab'
he / it (a subject mentioned earlier) 'earth-opens' (a ritual)

Numbers and Classifiers

As is well known, the numbers from 1-19 are represented either in bar-and-dot format or by their animated head variants. Looking at the head variants (see accompanying chart), one can see that they are really only different forms for the numbers 1-12, and sometimes up to 13; between 12 and 20, the head variants can be formed by combining the head for 10 (a skull) with the appropriate number (5 and 10 for 15, and so forth). This follows the terminology of Mayan languages: numbers above twelve are formed by combining the terms for 3-9 with *lahun*, "10." Above 19, we find the unit "20" represented by a logograph probably read **K'AL(?)** or perhaps **WINIK**, although the phonetic value of the sign remains obscure. Numbers from 21 through 39 are formed by adding a prefix from 1-19 before the 20.

Most numerical statements are simply written in the form of number + object, as in the following curious statement:



4-EHM(ACH)-ma-cha
chan ehmach
four raccoons

More interesting are the counts of possessed objects, where the ergative pronoun intercedes between the number and the object:



4-U-CHUM-TUUN-ni
chan u chumtuun
four are his stone-seatings

Ordinal numbers, designating a place in a numerical sequence, are formed by prefixing *u-* before the number.



U-7-HAAB'
u-wuk-haab'
the seventh year

Numeral Classifiers

Mayan languages rely greatly on words known as numerical classifiers -- terms that describe the nature, shape, or condition of counted objects. These terms come directly after the numeral and before the counted object. By far the most common in the inscriptions is *-te'*, probably derived originally from the stand alone noun *te'*, meaning "wood, tree, plant." Others attested in the Classic texts include:

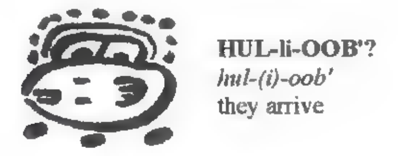
-lat, for short periods of days
-nab', for hand spans
-tikil, for people
-pis, for count of "stones" and time periods

Plural suffixes

Plural suffixes on counted objects are rarely indicated (**3-B'AAK-ki** for "three prisoner(s)"), and we assume that often the requisite suffix was supplied by readers when the plural meaning was obvious. Plural endings such as *–oob'* are more strongly featured in glyphic spellings when no specific number is indicated.

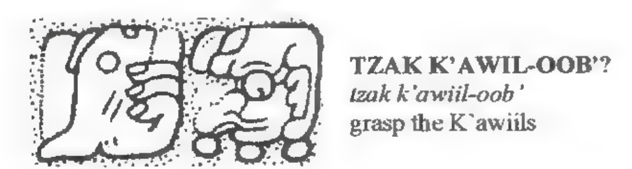
The suffix *–oob'* can serve as a general plural ending on nouns, but in this capacity it should more correctly be considered as the same absolutive pronoun suffix we have just seen. Thus, whereas modern Ch'ol *winik-ob'* might be easily and adequately translated as "men," it is structurally a stative equation between a third-person plural marker and its noun stem, *winik*. Hence "they are men" would be a more precise understanding of the term.

It is difficult to identify many examples of the *-oob'* plural marker or absolutive pronoun in the script, apart from its appearance on demonstrative and independent pronouns like *haa'-oob'*, where it is spelled syllabically. One other sign showing three circles on the horizontal row may serve as a logographic –**OOB'**, but this is highly tentative:



HUL-li-OOB'?
hul-(i)-oob'
they arrive

The subsequent glyphs in this text seem to name multiple subjects, necessitating the presence of the plural absolutive subject marker. We also find the same possible *–oob'* suffix on the deity name K'awiil, as in this verb phrase from Yaxchilan:



TZAK K'AWIL-OOB'?
tzak k'awiil-oob'
grasp the K'awiils

The plural person marker makes very good sense in this context, given that the ruler is shown holding a serpent with *two* emerging K'awiil figures.

If this three-dot suffix is an **–OOB'** sign, it is not terribly common. Most participants named within the discursive structures of Maya texts are singular subjects, agents, and patients. The use of the three dots as a plural marker may derive from the sign for the numeral three; a "two" sign would be unacceptable for this purpose, given its orthographic use as a marker for sign doubling.

Another plural ending found in the Classic inscriptions is *-tak*, corresponding to the *–tak* ending on nouns attested in Ch'ol and Chontal, with a cognate form *t-ik* widely used in Tzeltalan languages. The same word is widespread in other languages as a lexical root, as in Ch'orti *tak-ar*, "with, with it, from it," and in Yukatekan as the root "to join or connect." In Itzaj, for example, *täk* carries the meanings "join, connect, come together." In Chontal it appears as a suffix directly on the noun stem, and is capable of combining with *–ob'*, as in: *haın-tak-ob'*, "they are the ones," and *y-ixık-tak*, "(they are) their women." Clearly it is not an allomorph of the absolutive pronoun *–oob'*, but rather operates more as an indicator of the collective quality of the noun.

The *–tak* plural ending was first identified by Alfonso Lacandena in an inscription excavated at Oxkintok, where it is spelled with the suffixed syllables **-ta-ki:**



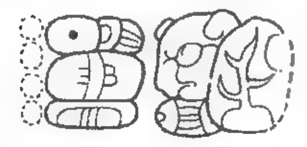
ch'o-ko-ta-ki
ch'ok-tak
youths

I have since found that *–tak* is likely the value of a logographic sign that marks plurals in precisely the same manner.



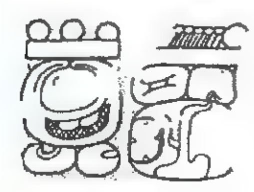
ch'o-ko-TAK-ki
ch'ok-tak
youths

This particular reference to a group or collection of "youths" probably alludes to a quartet of cosmological gods associated with the four cardinal directions. A more specific reference at Palenque is as follows:



4-ti-ki-li ch'o-ko-TAK
chan-tikil ch'ok-tak
the four youths

The *–tak* ending exists in association with other personal referents, such as *ajaw* and *ch'ajom*. I know of no examples of *-tak* suffixed on an impersonal noun.



8-K'AL?-wa AJ-AJAW-TAK
waxak-(t-u)-k'al?-aw(?) ajaw-tak
(they are) twenty-eight lords

Prepositions and Relational Nouns

The basic and most general preposition in the glyphs, as in Mayan languages, is *ti-* or *ta-*, each meaning "in, at, to, on, with, by means of."



TI-8-AJAW
ti Waxak Ajaw
On (the day) 8 Ajaw



TA ?-CHAN
ta ? chan
in the (resplendent?) sky



ti-a-AK'AB
ti ak'ab'
in the night

Sometimes the *ti-* or *ta-* preposition combines with the *u-* (3rd person singular) ergative pronoun to form the prefix *tu-* (= *t-u-* < *ti-u-)*. One unique example below shows it also combining with the 1st person ergative.



tu-NAAH-hi
t-u-naah
in her house



tu-K'UH-li
t-u-k'uh-ul
for his god(s)



tu-B'AAH-hi
t-u-b'aah
on his person, on him



ti-ni-B'AAH
t-in-b'aah
for my person, for me

Another important preposition is *tahn-*, "in front of" or "within." We find this, for example, in the expression



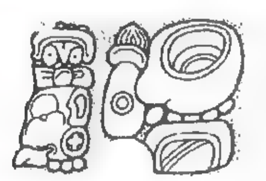
TAHN-na-CH'EEN-na ?-TUUN-ni
tahn ch'een ? Tuun
Before the cave /spring (of) "Paw Stone" (Piedras Negras)

More Noun Derivations with *–Vl*

(a) N-*il* ending

We have encountered the suffix *-il* in our early considerations of noun types, and the contrasting forms they take as either absolute or possessed. Basic to the distinction is the suffix's presence or absence. Before we consider again the complex topic of noun possession and the role of *-il* in its process, a few simpler uses of the ending are important to keep in mind.

The *-il* ending appears on certain verb roots, deriving nominal forms from them.



U-B'AAH-hi TI-CH'AB'-li
u-b'aah ti ch'ab'-il
his person in (the act of) penance

It also derives abstract nouns from concrete nouns:



AJAW-li
ajaw-il

(b) N-*el* ending

The ending *-el* derives nouns expressing a certain direct and concrete attribution of the root to another entity that need not be expressed. In grammars it is often grouped as a variant of other -V*l* endings such as the important *-il*, but we will see that *-el*, in the inscriptions at least, operates under its own slightly different rules, and conveys subtle information not offered by *-il* or the other -V*l* endings. (The source of the confusion, I suspect, comes from the fact that the role of *-el* has been broadened from the more narrow role described here, overlapping considerably with *-il*).

In a number of lowland langauges including Ch'olan and Yucatecan, for example, the term *ch'ich'-el* (or *k'ik'-el* as it is found in Yucatecan) is clearly translated as "blood," yet it is derived from a nominal root *ch'ich'* that seems to stand for "blood" in the abstract, unattributable

sense. The addition of the *-el* ending in *ch'ich'-el* produces a more exact reference, understandable as "one's blood (that is, of one's body)"

> *ch'ich'-el*, "one's blood (that is, of one's body)" < *ch'ich'* "blood (unattributed, in general)"
> *bak-el*, "one's bone" < *bak*, "bone (an attributed, in general)"
> *tzutz-el*, "one's hair" < *tzutz*, "hair (unattributed, in general)"
> *bak'-el*, "one's flesh" < *bak'*, "meat (unattributed, in general)"

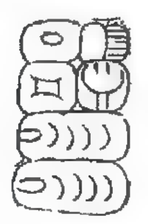
In this way the *-el* ending appears on body-part terms that describe in some way "substances" of the body as opposed to limbs, areas, or discrete parts.

The *-el* ending of this sort is not very common in the inscriptions, yet it is clearly attestable in this very important example inscribed upon a carved bone artifact excavated at Yaxchilan, and naming an important historical figure of that site.

> **U-b'a ke-le B'AHLAM IX-k'a-b'a-la**
> *u-b'aak-el b'ahlam Ix-K'ab'-al*
> it is the jaguar's bone of Lady K'ab'al (Xook)

On first glance, it might be tempting to see the expression *u-baak-el b'ahlam NAME* as no different than the possessive noun phrases we have often encountered, where the noun root takes the suffix *-il* when marked with an ergative pronoun. But here we have two very different entities specified: *b'ahlam* and the royal woman. Recall that in a simple possessive construction involving a *baak*, the phrase is *u-b'aak NAME*, "so-and-so's bone (object)," where no ending seems needed. In the example above, however, the appearance of *-el* corresponds with the insertion of a new referent, "jaguar." The ergative *u-* in each instance corresponds to the owner of the object, which is the woman, not "jaguar." The Yaxchilan bone is a jaguar's tibia, indicating that the possessed noun includes the entire expression *b'aak-el b'ahlam,* "jaguar bone." No ergative pronoun is necessary here to express any notion of "possession" with regard to the jaguar, for *-el* adequately establishes the idea of the thing's intrinsic "substance" as jaguar bone. The ergative pronoun, while sometimes used in conjunction with *-el* in simpler statements, seems to have a slightly different role here in expressing a definite but intrinsic link between the jaguar bone and the royal lady.

In a possibly related setting, the *-el* derivation also serves in the Classic inscriptions as a suffix on certain status terms into which an individual is seated or inaugurated. It is best known from its appearance on the root *ajaw*, "lord," perhaps to derive *ajaw-el*, "the status of being lord," or "lordship."



> **TI-AJAW-le-le**
> *ti-ajaw-(i)l-e(l)*

We earlier saw the related derivation *ajaw-il*, which is here derived further by *-el* (another example of syncope, which is fairly common in glyphic spellings). That is, the presence of the -**le-le** ending in the glyphs therefore may indicate a stacking of two distinct types of -V*l* derivations on *ajaw*. Considering how we have seen *-el* work in nominal contexts to derive intrinsic attributions, it is possible that here the *-el* serves to specify a more concrete manifestation, as it were, from the abstract, general notion of *ajaw*, "lord, ruler" and *ajaw-il*, "rulership." The ruler becomes the *ajaw-(i)l-el*, a realization of the *ajaw*-ship in the way *b'aak-el* is a realization or manifestation of "bone-ness" with regard to a more specific individual person or type (jaguar). Rather than being an abstractive suffix, *-el* may work in an opposite fashion to specify examples of an abstract concept.

Instrumental Nouns with –ib' or –Vb'

The *–ib'* or *–Vb'* ending derives nouns of instrument from verb roots or from other nouns.



CHUM-b'i
chum(-l)-ib'
a seat



yu-k'i-b'i
(u)y-uk'-ib' (< *uk'*, to drink)
his drinking cup

Note that possessed instrumental nouns can take the *-il* suffix.



U-WAY-b'i-li
u-way-(i)b'-il (< *way*, to sleep; to transform)
it is his sleeping place (a place for transformation)

Agentive Nouns

Agentive nouns describe a person's occupation or some other intrinsic quality of the individual. They are very common in the hieroglyphic inscriptions, almost always as part of so-called "titles" within a person's name phrase. Two types of agentive nouns have been identified in the inscriptions, the first and most common created by the prefix *aj-* and another by the suffix *-oom*.

Many examples of agentive nouns associate a particular named person with a place or location:



AJ-LAKAM HA'
Aj-Lakamha'
He of Lakamha' (Palenque?)

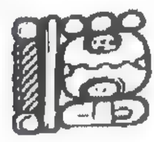


AJ-ka-KAN
Aj-Kan
He of Kan (Calakmul)

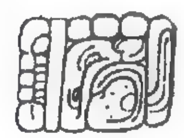
Other examples seem to specify an occupation or a direct association with enumerated persons or things:



AJ-u-?-lu
aj u..?..l
carver



AJ-3-B'AAK-ki
Aj ux-b'aak
He of three prisoners



AJ-3-LAKAM-TUUN-ni
Aj ux-lakam-tuun
He of three stelae

The pre-posed *aj-* is most often spelled with the bar-like sign shown in the above examples (logographic **AJ-**), yet in later examples we find that this could also be rendered with the parrot's head sign used otherwise as the syllable **a** (the reverse being also true, with the bar-like sign sometimes being used in syllabic contexts).

Formations of agentive nouns using the *-oom* ending are more rare in the Classic texts. While appearing similar in translation, the titles of occupations and other terms that make use of *-oom* represent a derivational process altogether different from the above examples. In the cases we can identify, the *-oom* forms agentives as a suffix on noun and verb roots:



ka-yo-ma
kay-oom
he is a fisherman (< *kay*, fish)



ch'a-jo-ma
ch'aj-oom
he is one who casts incense? (< *ch'aj*, incense)

The *-oom* ending appears also on intransitive verbs as a future aspect marker. One might reasonably suppose that the two functions may have a similar origin in that they describe persons

or activities that are anticipatory. A fisherman is a *kayoom* because he, by custom, always will be engaged in that activity – "he will fish."

Gender marking: The Ix- Prefix

The profile head prefix sign read IX- attaches to proper names and to certain titles of female subjects. Typically, these contrast with unmarked forms that refer to males.



IX-AJ-b'i-k'i-la
Ix Aj B'ik'al?
She of B'ik'al? (a local Piedras Negras locale)



IX-sa-ja-la
Ix Sajal
Lady Sajal

Adjectives

Noun phrases are often modified by an adjective that attaches directly to the front of the noun stem, and after the ergative pronoun. It may be more correct to say that adjectives are part of the noun stem, describing some essential state or character of the base root.

Some simple adjectives are a sub-type of nominal root (they might be called "adjectival roots"), whereas others are derived noun phrases re-incorporated into the stem. One very common category of adjectival root, of CVC shape and prefixed to the base root of a noun phrase, is made of color terms, as illustrated in a personal name:



K'AN-MO'-HIX
K'an-Mo'-Hix
Yellow Macaw-Jaguar

Adjectival derivations with -Vl

As we see with *k'uhul* in the last example illustrated, the suffix *-Vl*, where the vowel is reduplicated from the stem, can derive adjectives from nominal roots. Such adjectives seem to describe a special state or sub-type within a broader category. That is, they are states that are not in some way considered intrinsic or natural to the noun that is being modified.



TI-K'AHK'-la ju-lu
ti k'ahk'-al jul
"with a fiery spear" (< *k'ahk'*, "fire")



K'UH-lu IXIK
k'uh-ul ixik-ø
she is a holy woman (< *k'uh*, "god, holy thing")



TI-ka(-ka)-wa-la u-lu
ti-kakaw-al ul
it is for chocolatey atole (< *kakaw*, "cacao, chocolate")

These adjectives describe states of being that may well be non-permanent. That is, a "fiery spear" is a once-in-a-while object, and perhaps the woman was not always named "holy" in her lifetime. By contrast, we do not find *-Vl* endings on color terms modifying nouns; these seem to be considered more natural qualities.

Verb Morphology

In learning the basics of Maya grammar as reflected in the inscriptions we can concentrate on three main types of verbs: Intransitives, Positionals and Transitives. But before we look at how these operate, a discussion of verb tense and aspect is essential.

Tense and Aspect

In Mayan languages the temporal setting of an event or action is usually articulated through the complex interplay between so-called "status markers" and "aspect markers." Status markers, as described earlier, are suffixed to the derived stem of a verb, and mark its temporal character as completive, incompletive, or future. They are essential to understanding the placement of the action in time. Aspect markers are very different morphemes that precede the complete verb phrase, placed before the ergative person marker (if there). These serve to characterize an event or action as finished, not finished, or ongoing. In the inscriptions, at least, the completive, incompletive and future status suffixes seem to only appear with intransitive verbs. Aspect marking prefixes occur with both intransitives and transitives, but they are generally rare.

Temporal marking

Three temporal marking suffixes can be isolated in the hieroglyphic texts, all apparently allomorphs that occupy the same position directly before the absolutive pronoun suffix. They appear on root or derived intransitive verbs, the various types of which we will soon discuss.

-ø INCOMPLETIVE. Places an event in a narrative present.

-iiy COMPLETIVE. Marks events occurring in the past, or possibly distant past.

-oom FUTURE. Marks actions that are destined to occur, conveying a definite or habitual event.

To understand these distinctions in context, let us look at the way a common intransitive verb, *uht*, "happen," can be derived using the three suffixes.




u-ti
uht-i-ø
it happens



u-ti-ya
uht-i-iiy-ø
it happened (some time ago)



u-to-ma
uht-(i)-oom-ø
it will happen

Note the differences where –ø, -*iiy*, and –*oom* alternate. The -*iiy* is a common deictic suffix that marks past time on intransitive verbs and on certain time expressions.

The very same endings appear on more complex *derived* intransitives (soon to be discussed), as in these instances where they follow the ending –*aj*. For now, simply pay close attention to how the syllables are combined to produce the -*iiy* ending:



TZUTZ-AJ
tzuhtz-aj-ø-o
it is finished (imperfective)



TZUTZ-ji-ya
tzuhtz-(a)j-iiy-ø
it was finished (perfective)



TZUTZ-jo-ma
tzuhtz-(a)j-oom-ø
it will be finished (future)

The spellings of these suffixes are fairly regular in the hieroglyphic script. The completive -*iiy* is routinely conveyed by the syllabic sequence –Ci-ya, although some rare examples suggest that the –ya sign alone may serve to represent the ending. The spellings of other intransitive derivations ending with –*iiy* will be treated separately under discussions of those verb categories.

The future –*oom* is also represented by two syllables providing the sequence **Co-ma**, with the initial consonant of **Co** varying according to the final consonant of the preceding suffix. The -*oom* appears on root and derived intransitive verbs to mark actions that are anticipated for a specific time, but which have yet to occur.

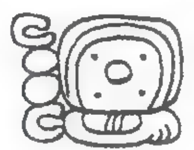
More on the –iiy ending

The –*iiy* suffix explicitly orients events and actions in the past. We find this is clearly the case in certain common temporal expressions in modern Mayan languages. For example, Ch'ol uses an adverbial expression *chab'-ij* to express "in two days." *Chab'* is "two" (the –*b'* is inserted as a transitional consonant) and –*ij* is a particle with the sense of "days elapsed." This last element is a reflex of Common Mayan *-*ej*, which may have its origin in the word for "day,"

as John Robertson has suggested. Note how the addition of the *–iy* ending in Ch'ol (to me identical to the completive ending in the glyphs) transforms the meaning of the expression:

> *chab-ij-ø*, in two days
> *chab-ij-iy*, two days ago

Note that the same expression occurs in the Classic inscriptions



2-b'i-ji
chab'-ij-ø
two days hence



15-ni-ji-ya
holajun-ij-iiy
fifteen days ago

The idea that *-iiy* is a completive marker is also forcefully demonstrated by the following temporal expression:



sa-mi-ya
sahm-iiy
earlier today

This last glyph is important because it tells us that the reader of the particular text exists within a narrative "present" of the inscription, even though its associated date is firmly within a lengthy historical time-line. Maya inscriptions routinely incorporate this idea of a "shifting now," with ample use of present or incompletive verbs. The common *-iiy* deictic suffix stands in marked contrast to this, placing the reader in past time.

Prefix Aspect Markers

In addition to the suffixes just described, verbs in the inscriptions can sometimes be modified by aspect markers that offer more specific information on the temporal character of the action. These come before both intransitive and transitive verbs. For example, in modern Ch'ol we have

> *woliy k-och-el* "I am entering" (*woliy-* progressive aspect marker)
> *tza' och-iy-on* "I entered" (*tza'-* completive aspect marker)

Such aspect morphemes are highly varied in the modern Mayan languages, although some ancestral forms can be reconstructed from common appearances. Ch'ol *woliy-* seems a Ch'ol reflex of an earlier form of the progressive **wal-*.

Prefixed aspect particles are very rare the Classic inscriptions, even though they are basic to verb formation in many modern Mayan languages. It is possible that they were unwritten but still pronounced by ancient readers. Of the aspect prefixes we see in the glyphs, only three seem to be identifiable.

i-yu-wa-la *iyuwal-* progressive
wa- *wa'-* progressive?
xa- *xa'-* future

Intransitive Verbs

Root intransitives (CVC-i)

A number of simple root intransitive verbs of CVC- shape are spelled with the syllable sequence CV-Ci. This unusual pattern with a final Ci sign seems not due to disharmony (some phonological feature of the root's internal vowel), but it may indicate that the root carries a suffix *-i*, perhaps the vestige of an earlier **-ik* that appeared in Common Mayan as an ending marker for "single argument predicates." Whatever the explanation turns out to be, these simple CVC*i* intransitives constitute one of the most numerous type of verb found in the Classic inscriptions.

Subjects are represented by the absolutive pronoun suffix after the stem. Most pronoun suffixes are unmarked third-person, -o, and therefore are not shown in the hieroglyphic spellings. This is not the case for one first-person *-een* and the third-person plural *–oob'*, given below.



u-ti
uht-i-ø-o
it happens



OCH-chi
och-i-ø-o
it enters



CHAM-mi
cham-i-ø-o
he/she died



HUL-li
hul-i-o-o
he/she arrives

The placement of the completive suffix *-iiy* in this slot serves to place the action is a definite past, relative to other events in the surrounding discourse.



o-chi-ya
och-i-iiy-ø
it entered



CHAM-mi-ya
cham-i-iiy-ø
he/she died



HUL-li-ya
hul-i-iiy-ø
it arrived

-Vy Intransitives (Mediopassives?)

An important class of intransitive verbs is marked by the sign suffix -yi after a logograph or a syllabic grouping spelling the intransitive root. This likely corresponds to the ending -V*y*, attested in Ch'olti and Ch'orti as a marker for a subcategory of intransitives that relate to physical movement and chang e of state. They have been interpreted as possible mediopassives. The vowel of the suffix repeats that of the CVC root. Historical and modern examples include:

och-oy, "he enters"
t'ab-ay, "it ascends"
lok'-oy, "it comes out"

In Tzeltalan a similar -V*y* morpheme derives intransitive stems from adjectival, positional, and intransitive verb roots, and it is very likely cognate to the Eastern Ch`olan suffix. One Tzeltal example is *tzutz-uy*, "come to an end" (< *tzutz*, "end"), which corresponds precisely with the Classic verb of the same form.

In the inscriptions we find the following glyphs that would appear to be members of an ancestral formulation of this distinctive Eastern Ch`olan class.



T'AB'-yi
t'ab'-ay-ø-ø
it ascends



ju-b'u-yi
jub'-uy-ø-ø
it falls



TZUTZ-yi
tzutz-uy-o-ø
it finishes

In the completive aspect the sign -ya follows -yi- to produce the ending -V*y*-*iiy*:



PUL-yi-ya
pul-uy-iiy-ø
it burned

Passages that employ the -V*y* class of intransitives tend to have a very simple structure. like other instransitives described thus far. Grammatically a single name or noun must always follow to mark the subject of the intransitive root. An elaboration of this essential structure can be found in the Dedicatory Formula on ceramic vessels and other objects, where the subject is a possessed noun with a potential number of modifiers.

A minor point of interest is the transformation of the instransitive root *'och-*, "enter," from a simple intransitive to a productive member of the -V*y* class in Ch'olti and Ch'orti. It is difficult to understand the exact distinction of roots marked by -V*y*, but a perusal of them reveals the common feature of unidirectional movement, either horizontally or vertically: "ascend," "descend," "go down," "leave." "Enter" is easily a part of this class, but perhaps more ambiguous in that it can overlap with simple intransitives describing states or positions, such as "sit," "come," "finish." Eastern Ch'olan languages seem to have transferred "enter" into membership of the -V*y* category sometime after the Classic period.

Derived Intransitives

Intransitive verbs derived from either transitive roots or noun stems are extremely common in the inscriptions. Several suffixes are known to derive intransitives from different classes of stems, forming passives, antipassives. and inchoatives, among possible other types. Three basic suffixes that derive intransitive stems will be treated, marked respectively by the suffixes *-aj*, *-aw*, and –V*n*.

The *–aj* suffix

The suffix *–aj* is one of the most common found in Maya texts, and was recognized early in Maya epigraphic studies as a reading for the so-called "lunar post-fix." A number of subsequent studies greatly refined our understanding of *aj*, especially Macleod and Bricker's contributions to grammatical analysis in the 1980's. Our current understanding suggests that *–aj* ending is a marker for a number of different types of derived intransitive verbs, including passive forms.

The presence of the syllable **ja** on the end of a verb is an easy way to recognized a derived intransitive verb. Usually this appears in conjunction with other syllables to give the *–aj* ending, but the **ja** can also serve alone to represent the morpheme.

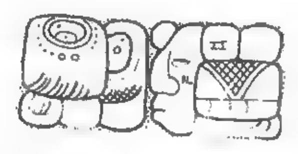


chu-ka-ja
chuhk-aj-ø-ø
he is seized



mu-ka-ja
muhk-aj-ø-ø
he is buried
NB: here the **ja** sign assumes its head variant form, representing the moon goddess

In its most common usage, the *–aj* suffix helps to derive intransitive verbs from transitive verb roots. "Seize" is an excellent example, where the root stem *chuk* , "to seize something," is derived as a single argument intransitive that works much like a passive, *chuhk-aj*, "he is seized." In proto-Ch'olan, passive constructions call for the insertion of *–h-* after the internal vowel of the CVC transitive root (CVC *chuk* > CV*h*C *chuhk*). Other similarly derived verbs are

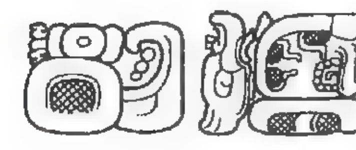


ma-ka-ja IX-NAMAN?-ni-AJAW
mahk-aj-ø-ø Ix Naman(?) Ajaw
Ix Naman Ajaw is enclosed

(This event refers to the "enclosure" of a twelve-year old girl, probably a puberty rite at the time of her betrothal or marriage to Ruler 3 of Piedras Negras. Her emblem glyph may associate her with the site of La Florida, on the San Pedro River.)



pa-sa-ja U-B'AAK-ki U-JOL YAX-9-CHAHK YAX-a-AJAW
pahs-aj-ø-ø u-b'aak-ø u-jol-ø Yax B'olon Chahk Yaxa' Ajaw
The bones and skull of Yax Bolon Chahk, the Yaxha Lord, are revealed



tz'a-pa-ja U-LAKAM-TUUN-li
tz'ahp-aj-ø-ø u-lakamtuun-il
his stela is erected

As one would expect, the completive of all verbs ending in *-aj* is *–(a)j-iiy* formed by the suffix signs **–ji-ya.** Compare the following:



jo-ch'o-ja
johch'-aj-ø-ø
it is drilled



jo-ch'o-ji-ya
johch'-(a)j-iiy-o
it was drilled

The *–aj* intransitive suffix can also appear on passive derivations of non-CVC transitive stems, which can look very different from the examples above. These are not very common, but they do appear from time to time, and may have an important role especially in the Dedicatory Formula (or Primary Standard Sequence). The morpheme suffix *-n-*, which derives passives from non-CVC transitives in Ch'orti, has a similar role in the glyphs. In the few examples known, the combined derivational suffixes *-n-aj* are spelled by the signs **-na-ja.** However, it must be said that these forms remain poorly understood, due to the simple fact that the non-CVC transitive roots to which they attach (such as the "lu-bat" glyph for "carve") are difficult to identify in full.

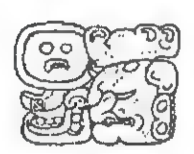


u-lu-?-na-ja
ulu..?-n-aj-ø
it is carved

In addition, *-aj* can appear in a select few contexts after *–w* in yet another intransitive derivation, and curiously enough on the same verbs just encountered. This are difficult to analyze, but I believe they ultimately relate to the *–aw* inchoative ending in Tzeltal and Ch'olti. For the present, it seems safe to say that stems formed by *-aw* become re-derived as passives.



B'AAK-wa-ja
b'aak-w-aj-ø
he is captured



na-wa-ja IHCH'AAK-B'AHLAM
na'-w-aj Yihch'aak B'ahlam
Yihch`aak B'ahlam is displayed (??) (lit. 'made known')

Verbs derived by *–aj* can be nominalized by the suffixation of *-el*, yielding *–aj-el*. This suffix seems to derive an independent verbal noun, although the contexts are not altogether clear. The known examples are imbedded within personal name phrases or difficult text passages, and so they should be considered tentative at this stage.

The -*Vn* suffix

The -V*n* suffix on verbs has one of a few different roles, depending on its context: as a passive within -V*n-aj* (as we have seen), an inchoative, or as an anti-passive.

One context (*k'uh*-V*n* in the title *Aj k'uhun*) suggests that -V*n* can derive intransitive verb stems from noun roots, much like the role of -V*n* in Tzeltal. Some examples of -V*n* in the inscriptions appear to be inchoatives, probably ancestral to the suffix *-an* attested with a similar role in Ch'ol.



a-AJAW-wa-ni-ya
ajaw-an-iiy-o
he became lord



AJAW-ni-ya
ajaw-(a)n-iiy-o
he became lord

Overall -V*n* would seem to be a productive suffix capable of deriving intransitive verbs from noun roots.

In other examples we find the ending -*Vn* in connection with *b'ix-*, "go," in a form that is specifically attested only in Ch'olti and Ch'orti:



B'IX-na
b'ix-Vn-o-o
he goes
(c.f. Ch'olti', Ch'orti' *bix-Vn-el*, "going")

Conceivably, the **-na** sign suffix on **B'IX** might indicate that the morpheme ending is *-an*, but this is hardly a solid conclusion to draw. Whatever the vowel on the suffix, it seems to be subjected to syncope in this example below, when the completive status marker *-iiy* is added.



b'i-B'IX-ni-ya (alternatively **bi-xi-ni-ya**)
b'ix-(V)n-iiy-o
he went

The attested nominalized form in Ch'olti and Ch'orti, *b'ix-n-el*, seems highly irregular, as Kaufman and Norman have noted. The presence of the -V*n* in this context is not understood, but it contrasts with frequent examples of the root *bix* without this derivation, as in **7-b'i-xi-ya**, for *wuk-b'ix-iiy*, "seven (days ago) it went." The precise distinction in these verb forms requires further thought.

In earlier work on verb derivations in the inscriptions, Lacadena proposed that -V*n* could serve as an antipassive suffix, deriving an intransitive form from a Root CVC transitive. One of the clearest places to see this is at Copan, within future constructions.



pa-sa-no-ma
pahs-n-om
it will open up



ma-ka-no-ma,
mahk-n-om
it will close up

Positional Verbs

Ch'olan and Yukatekan Mayan exhibit a special class of intransitive verbs called "positionals." As the label implies, positional roots describe the physical setting or orientation of a person or thing. A list of positional roots in the Classic texts gives the sense of their role as a sub-class of intransitive verbs.

chum, "sit"
jaw, "be face-up"
k'al, "be fastened"
pak, "be folded, doubled-over"
pak', "be face-down, inverted"
tz'ak, "be aligned"
wa', "be stood-up, erect"

The stative of positional verbs is marked by the suffix $-V_1l$, securely reconstructed in proto-Ch'olan. This may well be the same $-V_1l$ particle that derives adjectives from nominal roots. Examples in Ch'olti include *chum-ul* "it is located," and *mak-al* "it is covered." In the Classic inscriptions we find few of these stative positionals as stand-alone words; nearly all are used as stems within positional verbs suffixed by *-aj*.

Gerunds of positional verbs are derived with the ending *-il*, serving to nominalize the CVC positional root. There is potential confusion between such nominal derivations and the stative forms above, but they seem distinct. The gerunds of positionals appear in prepositional phrases following *ti*, as in *ti chum-ul*, "in the act (or state) of sitting":



U-b'a-hi TI CHUM-li
u-b'aah ti chum-ul
it is his/her person in (the state of) sitting

These $CV_1C\text{-}V_1l$ positional stems can be readily derived as intransitive verbs by adding *aj*.



CHUM-la-ja
chum-(u)l-aj-ø
he sits



pa-ka-la-ja
pak-(a)l-aj-ø
he inverts

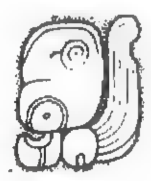
When the completive deictic ending *–iiy* is added to these forms, the sign affixation changes somewhat:



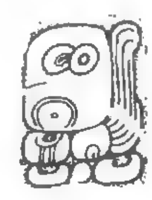
CHUM-la-ji-ya
chum-(u)l-aj-iiy-ø
he sat

The -wan *suffix*

Another common affix pattern on positional verbs is the suffixation of the signs **–wa-ni**. Barbara Macloed was the first to link this with the *–wan* ending documented on positionals in Ch'olan languages. the *–wan* suffix is added directly to the positional root. By far the most common example in the glyphic texts is again with *chum*, "sit,"



CHUM-wa-ni
chum-wan-ø-ø
he sits



CHUM-wa-ni-ya
chum-wan-iiy-ø
he sat



wa-WA'-wa-ni
wa'-wan-ø-ø
it stands up

Transitive Verbs

Transitive verbs contrast with intransitive verbs simply by the nature of the stem: *och* "enter" is an inherently intransitive, *chuk-* "to seize someone / something" is inherently transitive. In numerous cases, a transitive stem can be derived from an intransitive root (and vice-versa). The broad class of transitive verbs therefore includes what we call "root transitives" and also "derived transitives."

Root-Vw Transitive Verbs

By far the most frequent type of transitive verb construction employs the suffix sign **-wa** after a transitve root that is in turn prefixed by an ergative pronoun that specifies the agent or subject of the transitive action.

ERGATIVE PRONOUN – TRANSTIVE ROOT (CVC) – V*w*

Its consistent structure is quickly apparent through the following examples, all of which are followed by the personal name of the agent (not illustrated):



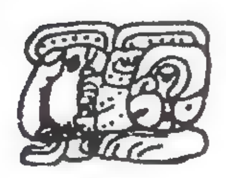
U-CHOK-wa ch'a-ji
u-chok-ow ch'aaj
he casts the incense



U-K'AL-wa-TUUN-ni
u-k'al-aw tuun
he binds the stone



U-tz'a-pa-wa TUUN-ni
u-tz'ap-aw tuun
he sets upright the stone



U-TZAK-wa U-K'UH-li
u-tzak-aw u-k'uh-ul
he grasps (conjures) his god

Derived Transitives

Another important class of transitive verbs are widely known as derived transitives. As with the other transitives already discussed, these always take the ergative pronoun prefix (**U-** or one of the **yV-** syllables)

ERGATIVE PRONOUN – DERIVED TRANSTIVE STEM – *ij-(iiy)*

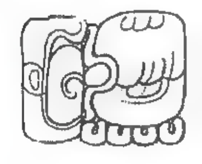
The nature of these expressions, studied in most detail by Barbara Macleod, is still under discussion by epigraphers and linguists, and many of them remain poorly understood semantically. There is general agreement that they represent a special class of transitive verbs that, by their suffixation, "back reference" a direct object that is previously expressed in the inscriptions.



TIK: Burial 196 vessel



ya-la-ji-ya ti tz'u-nu
y-al-ij-iiy ti tz'unun
the hummingbird said it to Itzamnaaj



yi-ILA-ji
(u)y-ila-ij
he witnesses it

Negation and Adverbial Modifiers

Verb stems may carry pre-posed lexemes that modify the character or quality of the verb, much as an adjective modifies a noun stem. In general, adverbial modifiers are rare, but are important in expressing negation and repetitive action.

The negation of verbs is indicated by the **ma-** or **ma-a-**, corresponding to the widespread Mayan negative particle *ma'*-, "no, not". This can be prefixed to the verb root or, when an ergative pronoun is present, be placed before the person marker.



ma-a IL-a-ji
ma' ila-aj
he is not seen



ma-ya-k'a-aw
ma' y-ak'-aw
he does not give it

The **ma-** prefix can also occur in stative expressions, as seen in this common couplet:



[2]ma-CH'AB'-AK'AB'-li
ma' ch'ab'-ø ma' ak'ab'-il-ø
he is not creation, he is not darkness (i.e., not a ritual actor, describing a captive)

The Nominalization of Verbs

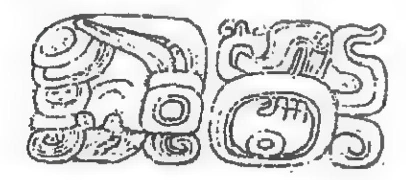
At times a verb or verb-noun phrase can be re-derived as a noun. In many Mayan languages, simple intransitives can be nominalized and possessed, as in *u-tal-el*, "his arrival," but this sort of derivation is thus far unknown in the glyphs. Historically the *–el* on simple intransitives was basic to the creation of a split ergative pronominal and verbal system which is not reflected in the language of the Classic texts. The *–el* ending does, however, appear once or twice on derived intransitives (for example, *yiplaj* > *yiplaj-el*), but it is a rare suffix in this usage.

The root *tzutz*, "to complete something" is primarily transitive in character (*u-tzutz-uw*, "he completes it") and appears to be nominalized here through the ubiquitous *–il* suffix in this rare example.



U-TZUTZ-li 9-PIK
u-tzutz-il b'olon pik
The completion of nine Bak'tuns

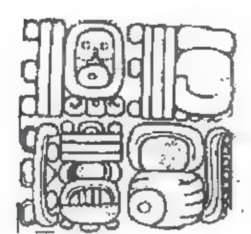
A far more common type of nominalization involves a verb being "stripped" of any derivational suffixes and combined with a subject or object. Thus the simple intransitive statement *och-iiy-ø k'ahk'*, "the fire entered" can be nominalized through as *och-k'ahk'* and made the subject of a verb, as in



UH-ti-ya OCH-K'AHK'
uht-iiy-ø och-k'ahk'
it happened, the fire-entering

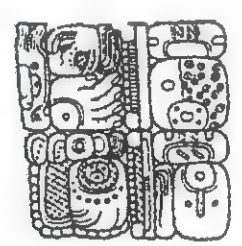
Transitive verb expressions can also be reanalyzed as nouns through a similar process, as in the combination *k'al-tuun*, "stone binding," where *k'al* is the transitive root for "to bind, fasten something," and *tuun* is an incorporated object -- the thing that is bound. Such stripped down verb-noun utterances become nominal stems in their own right that can in turn subject to derivation.

To illustrate, we know that the active transitive form of "stone binding" is spelled **U-K'AL-wa TUUN-ni**, for *u-k'al-aw tuun*, "he binds the stone." When stripped of its pronoun prefix and verbal affixation, the compound **K'AL-TUUN** can stand alone as a noun in a stative construction, as in



13-AJAW 18-HUL-OHL-la U-17-WINIKHAAB'? K'AL-TUUN
13 Ajaw 18 te' Hulohl u wauklahun winikhab' k'al-tuun
13 Ajaw 18 Kumk'u is the 17th K'atun, it is the stone-binding

K'al-tuun came to be used as a noun throughout the colonial Yukatek documents as a proper name of the twenty-year period, the K'atun. In other examples we find the nominalized *k'al-tuun* form possessed with the addition of an ergative pronoun.



U-K'AL-TUUN-ni AJ-CHAK-WAY-bi k'u-ti-ma AJ-YAX-ni-la
u-k'al-tuun Aj Chak Wayib K'utiim Aj Yax Nihl
it is the stone-binding of Aj Chak Wayib K'utim, He of Yax Nihl

Here the ergative pronoun links the compound noun to a personal name, specifying him as the subject of the transitive action. An interesting contrast can be seen with the following example, where a the personal name is replaced by a date, and the noun ending *-il* appears after the possessed noun



8-AJAW 18-HUL?-OHL U-K'AL-TUUN-ni-li 13-AJAW 13 CHAK-AT-ta
Waxak Ajaw Waxaklahun te' Hulohl u-k'al-tuun-il Uxlahun Ajaw Uxlahun te' Chakat
8 Ajaw 18 Kumk'u is the stone-binding of 13 Ajaw 13 Woh

Here the "owner" of the action is a specific day, the Period Ending 10.0.5.0.0. 8 Ajaw 18 Kumk'u came 320 days later, presumably when the stela or some other ritual stone was dedicated. There is no subject or agent of an action given; rather, the statement expresses an attributive relationship between the first date and the second.

V
The Calendars

The Calendar Round

The so-called Calendar Round more correctly consists of two intermeshed but separate calendars, one "ritual" cycle 260 days and another of 365 days, approximating the solar year. When combined, as they so often were in Maya records, they produced a grander cycle that would repeat every 18,980 days, or approximately 52 years. These cycles were shared throughout Mesoamerica in Pre-Columbian times, although the names of the various time periods of course were quite varied and present in many different languages. Indeed, the Maya did not invent the calendar systems for which they are sometimes lauded, for, as we shall see, its origins probably existed to the west, perhaps among the precocious cultures of Early and Middle Formative Oaxaca. Vestiges of these calendars remained in use well into modern times, and indeed are vibrantly employed today by some traditional communities.

For the purpose of learning the mechanics of the Calendar Round system, it is useful to begin with the natural day as a simple and easily recognizable unit. All the varied cyclical systems employed in Mesoamerica were, at least in part, records of individual days. It is no accident that the word for "day" in Mayan languages, *k'in* or its cognate forms, is also the word for "time" in the abstract sense. Individual days could therefore be recorded by a variety of methods, depending on the calendar cycle used, or, as was more common, a combination of such cycles. The Calendar Round, with its two essential components, was perhaps the most common means of recording a single day.

The 260-day Round

Among the most important of these recurring cycles was the period of 260 days, commonly known as the *tzolk'in*. This consists of two smaller recurring cycles of days -- one, of 13, designated solely by the numbers 1-13, and another, of 20, each labeled with a separate name. The day names varied across Mayan languages and we can only presume that such was the case in Pre-Columbian times as well. For the moment, rather than referring to these varied names and meanings of the twenty days, we can focus on the mechanics of this cycle by labeling the days with the letters A-T. Individual days were designated by a combination of the number and name, in that order, so that we may arbitrarily label a certain day as 1A. The next day is 2B, the next 3C, and so on, until we arrive at 13M. After thirteen days the short numerical cycle reverts back to 1. After 13M comes 1N, 2O, 3P, and so forth. Once the day 7T passes, the day name will revert back to A, so that the next day is 8A. Continuing in this way, the combination 1A, or any day in this system, will arrive 260 days after its initial appearance.

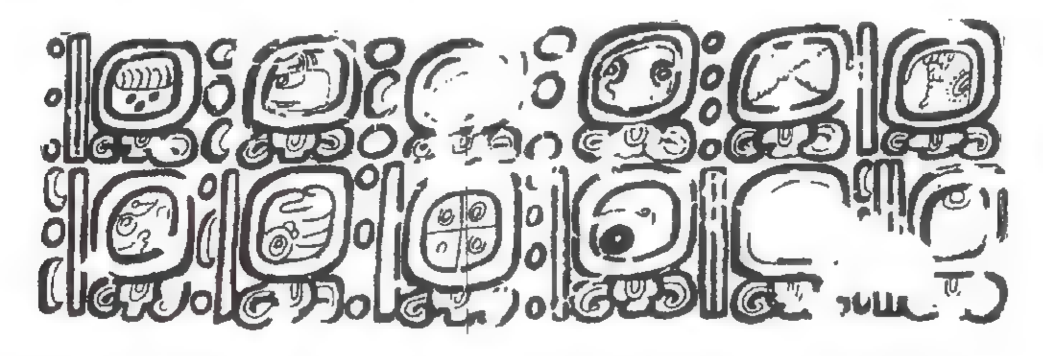
Applying the traditional Yukatek names to the system we have described, we have the following sequence of days, reading down in each column:

1 Imix
2 Ik`
3 Ak`b'al
4 K'an
5 Chikchan
6 Kimi
7 Manik'
8 Lamat
9 Muluk
10 Ok
11 Chuwen
12 Eb
13 Ben
1 Ix
2 Men
3 Kib
4 Kab'an
5 Ajaw
6 Imix
7 Ik'
8 Ak'b'al
9 Kan
10 Chikchan
11 Kimi
12 Manik'
13 Lamat
1 Muluk, etc.

It should be emphasized that these names, while apparently prevalent in Yucatan in the 15th century, were not necessarily those used by Classic-period scribes of Yucatan or areas further south. Indeed, it is difficult if not impossible to know how the names were pronounced in the 7th or 8th century at various sites, without reliance of phonetic clues attached to the day signs themselves.

The day signs are easily recognized in the inscriptions by being enclosed with a special cartouche. This has a thick rounded border, and often a tri-lobed "pedestal" on which it rests. In painted texts, the cartouche often has a red color, in stark contrast with the surrounding black-and-white lines. The red cartouche surely derived originally from the sign for "blood," as seen in some of the earliest Maya day signs.

The sequence of numbers and names given above can now be seen in this remarkable painted inscription from Ek` Balam, Yucatan, drawn and analyzed by Alfonso Lacadena. Here one sees a tally of days, used in this inscription to indicate the passage of time.



The days signs themselves hold a fairly consistent form throughout the Classic period, and a good many of them relate to the twenty day glyphs and names known from other Mesoamerican cultures.

The 365-day round

Although sometimes accorded a secondary role in descriptions of the Mesoamerican calendars, the solar year of 365-days is perhaps the most important type of day-count. The solar year is still reckoned in the ancient manner in several modern Maya communities as a type of "civil calendar," even in areas where the more esoteric 260-day cycle no longer survives. This is natural enough, given the obvious importance of the solar year in the practical lives of Maya throughout history.

The Mesoamerican solar year was conceived as eighteen "months" of twenty days each, followed by a five-day closing period that was itself a kind of "mini-month." Individual days would be numbered within each month, so that a day in the Classic Maya system might fall on "the eighth of Kasew," to be followed by "the ninth of Yaxk'in," and so on, up to 19 Yaxk'in (a convenient short-hand way of representing the station). The next day, in turn, was the "seating" (*chum*) of the next month, Mol. Then came 1 Mol, 2 Mol, and so on, up to 19 Mol, which was in turn followed by "seating of Ik'sihoom." All cultures of Mesoamerica made use of this type of calendar, although the names varied considerably, even within single language groups. Early historical sources such as Landa's *Relación* often mention the distinctive community-wide festivals associated with each month.

Mayanists long ago adopted the names of the months used in Yucatan at the time of the Conquest, but the labels used among other groups such as the Tzotzil can appear very different. In Classic times as well, we see some variability, despite a few clear overlaps. Here are the Precolumbian names and their Yukatek equivalents:

Classic Mayan	Yukatek
K'anjalab'?	Pohp
Chakat	Woh
Ik'at	Sip
Suutz'	Sootz'
Kasew	Tsek
Tzikin	Xul
Yaxk'in	Yaxk'in
Mol	Mol
Ik'sihoom	Ch'en
Yaxsihoom	Yax
Saksihoom	Sak
Chaksihoom	Keh
Mak	Mak
Uniw / K'ank'in	K'ank'in
Muwaan	Muan
Paax	Pax
K'anasiiy	K'ayab,
Hulohl?	Kumk'u
Uwayhaab'??	Wayeb'

It is interesting to consider why "seating" was used to describe the installation of a new month, for this was the basic term commonly applied to the accession of a king. Perhaps in some real sense the months were not simply abstract sub-divisions of the year, but animate beings in their own right. It is also tempting to wonder in this light if the twenty-day period was somehow conceived as a *winik*, a word that means both "twenty" and "man, person" in some Mayan languages. The word for "month" in Yukatek that is sometimes applied to these periods is the cognate form *winal*.

The Long Count

A separate calendar system widely known as the "Long Count" operated concurrently with the 260-day and 365-day rounds so far described. The Long Count was very different in its structure from these two cycles, presenting a more linear reckoning of days by means of a place-notation arrangement that expressed an accumulation of elapsed days from a set starting point in the distant past. The temporal scope of the Long Count was therefore much greater than the 260- and 365-day components of the Calendar Round. The three systems -- the Long Count, the 260-day round, and the approximate solar year cycle -- together constituted a "triumverate" of calendars used throughout the Maya history.

The standard Long Count has five units, each standing for a set period of time. These are, in increasing order, the *K'in* (the single day), the *Winal* (each equaling 20 K'ins), the *Tun* (18 Winals, or 360 days), the *K'atun* (20 Tuns, or 7200 days) and the *Bak'tun* (20 K'atuns, or 144,000 days). As we shall see, in writing Long Count dates in hieroglyphic form, the periods assume the opposite order, beginning with the Bak'tun and descending to the K'in. It can be seen that the system reflects the basic base-twenty structure of Maya numeration, with larger periods composed of twenty units of the next lower period. The exception to this pattern is the Tun, which is made up of 18 Winals (360 days), seemingly so as to approximate the solar year of 365 days. In the notation system, a numerical coefficient was assigned to each of these units to convey a certain amount of elapsed time from a specific starting date. A comparison to an automobile's odometer is perhaps apt, for the Long Count represented a perpetual accumulation of days.

Before we enter into a detailed treatment of the ways the Long Count calendar was presented in the hieroglyphic system, we might best understand its structure through a treatment of our own system of transcription. This was developed soon after the brilliant insights of Ernst Förstemann who, working nearly exclusively with the *Dresden Codex*, teased out the basic workings of the calendar system. Let us examine first a typical sort of date as we might transcribe it using Arabic numerals, with each part divided by means of a period (this is not at all related to the use of the period to express decimals in our own numeration):

9.14.4.17.15	7 Men	3 K'ank'in
Long Count station	260-day station	365-day station

First one will notice that we have given a Calendar Round date to the right of the five-digit Long Count. This reflects the standard ordering of elements as presented in the inscriptions, but more importantly it demonstrates the simple point that any and all Long Count dates have a corresponding position in each of the two components of the Calendar Round. The mathematical patterning of these systems necessitates that every Long Count date *has one and only one* Calendar Round equivalent. The corollary of this demands that a Calendar Round record such as "7 Men 3 K'ank'in" can have a *variety* of possible Long Count equivalents, given that any combination of 260- and 365-day statements will repeat every 18,980 days.

The five digits in 9.14.4.17.15 tell us that the date is 9 units of the Bak'tun, plus 14 units of the K'atun, plus 4 units of the Tun, plus 17 units of the Winal, plus 15 individual K'ins or days. Another way of representing the precise quantities involved would be:

9(20 K'atuns) + 14(20 Tuns) + 4(Tuns) + 17(20 K'ins) + 15(K'ins)

If we convert these units simply to the number of days expressed by the named periods we have:

9 * 144,000 days + 14 * 7,200 + 4 * 360 days + 17 * 20 days + 15 days = 1,398,595 days

In its essence, therefore, the Long Count 9.14.4.17.15 expresses a total accumulation of 1,398,595 days from a specific base date when the system began its day-by-day reckoning. The Maya wrote this base date as 13.0.0.0.0, which fell on the Calendar Round 4 Ajaw 8 Kumk'u. The day after this was 13.0.0.0.1 5 Imix 9 Kumk'u, the next 13.0.0.0.2 6 Ik 10 Kumk'u, and so forth. In seventeen days the count reaches 13.0.0.0.19 10 Kawak 2 Pop, with the next day being 13.0.0.1.0 11 Ajaw 3 Pop. Notice here that the K'in number has reverted to 0 and that the Winal, the unit expressing the set of 20-days, now is 1. The system accumulates in this way up through the ever-increasing units of the Tun, K'atun amd Bak'tun. After 13 Bak'tuns, the number prefix reverts to 1.

Each of the five periods of the simple Long Count has its own distinctive hieroglyph, each found in several different variants, to which are added numeral prefixes to express the multiplier of each unit ("9 Bak'tuns, 14 K'atuns," etc.). Long Count dates in the inscriptions are easily recognizable, often because they open a text in what Alfred P. Maudslay dubbed an "initial series" (I.S.) of glyphs. The Initial Series is composed of six parts. First we encounter a standardized "introducing" glyph that like an initial capital is sometimes enlarged to mark the beginning point of a text. This is usually referred to as the Initial Series Introducing Glyph, or simply I.S.I.G. Following the I.S.I.G. we come upon the Long Count record itself, with the five-part system usually presented in five separate glyph blocks. Some examples show visual truncations, usually in connection with periods whose values are zero. In some cases these "null" places in the Long Count record can be skipped and omitted altogether..

The first examples are from texts from the Isthmus of Tehuantepec and the western highlands, where Long Count dates are written as a vertical set of five numbers, beginning with the Bak'tun period and ending with the K'in. As a true place-notation system, no period glyphs are ever shown in these earliest Long Count records. The first two are from non-Maya texts in the Isthmian or "Epi-Olmec" writing system, from which the Maya apparently borrowed the essentials of their calendrical notation system during the Late Preclassic era. The earliest date that shows period glyphs is Stela 22 from Tikal (A.D. 292), suggesting that their inclusion was primarily a lowland Maya phenomenon.

The term "Initial Series" is slightly misleading, for we find sometimes find such records inserted directly into a lengthy text, far from the initial point of a text. The back of Stela 31 from Tikal presents a good example of such an embedded Long Count, apparently used to feature the recorded date within the textual narrative.

The 13.0.0.0.0 4 Ajaw 8 Kumk'u "Creation"

The starting point for the standard long count fell on the day recorded by the Maya as 13.0.0.0.0 4 Ajaw 8 Kumk'u. This date appears in a great many inscriptions, described as when "the 13th Bak'tun ended," and is a Long Count date on Stela C of Quirigua. No obvious explanation comes to mind as to why the end of 13 Bak'tuns constitutes a starting point for the Long Count calendar, and the question has been a point of much discussion among Mayanists for many years. However, 4 Ajaw 8 Kumk'u was considered the point at which the cycles of the Long Count began their slow, day-by-day accumulation of time toward the current era. A date recorded on the Tablet of the Foliated Cross at Palenque states that two Bak'tuns later was the completion of two Bak'tuns in the Long Count, or 2.0.0.0.0 2 Ajaw 3 Wayeb, confirming that 13.0.0.0.0 4 Ajaw 8 Kumk'u served as a conceptual "zero" date for the five-period system. The very next day would be 13.0.0.0.1., with a single Bak'tun later being expressed as 1.0.0.0.0. The use of the thirteen prefix as a functional zero will be seen again and again when we discuss the mechanisms of the Grand Long Count. At any rate, knowing the precise number of days expressed by the Long Count dates, we can reckon backwards and assign this starting day to our own 13 August, 3114 B.C (Gregorian), in the modified Goodman-Martinez-Thompson correlation (584285). Several inscriptions record the great completion of 13 Bak'tuns on 4 Ajaw 8 Kumk'u (13.0.0.0.0), with the more complete description of the event coming from Palenque and Quirigua.

The Grand Long Count and Concepts of Deep Time

The standard Long Count using five periods clearly was an adequate mechanism for the precise tracking of time in the vast majority of circumstances. Even so, the five periods from the K'in to the Bak'tun was limited for the recording and computing of very large time intervals. The largest amount of elapsed time that could be recorded by the standard Long Count was 19.19.19.17.19, or 2,879,999 days. In certain ritual or mythical texts, however, Maya scribes felt the need to compute greater time amounts -- sometimes very much greater -- and in these records and calculations they employed time periods above the Bak'tun. The standard five-part Long Count is, in fact, a truncated version of a larger system composed of (at least) twenty-five periods I will call the "Grand Long Count." The standard Long Count constitutes the last five parts of this greater arrangement.

Several of the period glyphs just above the Bak'`tun have long been known, but the majority of these vast time units are today nameless. Just above the Bak'tun is the Piktun (20^3 Tuns), followed in turn by the Kalab'tun (20^4), K'inchiltun (20^5), and Alautun (20^6). Given that an additional *sixteen* units existed above the Alawtun, we may quickly appreciate the truly vast time intervals that the Grand Long Count encompasses. The highest known period, for which we have no name, stands twenty places above the Bak'tun, and thus is equivalent to 20^{22} Tuns. As with any other time period of the Long Count, the addition of a numerical coefficient (1-19) to this single period indicates its multiple in turn.

Only two records of the full Grand Long Count are known to exist, both from the site of Coba. There, on Stelae 1 and 5, Initial Series dates record the "era" date 13.0.0.0.0 4 Ahau 8 Kumk'u in the following way

13.13.13.13.13.13.13.13.13.13.13.13.13.13.13.13.13.13.13.13.0.0.0.0 4 Ahau 8 Kumk'u

This is a *complete* Long Count, chronologically identical to the standard but reduced record using five periods. This is confirmed by one inscription at Yaxchilan that makes use of a truncated record of the Grand Long Count, including only eight periods above the Bak'tun. The date is written

13.13.13.13.13.13.13.13.9.15.13.6.9 3 Muluk 17 Mak

This is simply an extended way of writing the more standard 9.15.13.6.9 3 Muluk 17 Mak, a historical date of a ritual ballgame performed by the local ruler Bird Jaguar IV. All Long Count dates of Maya history using five numbers can be considered as abbreviated forms of a vastly larger record of elapsed time.

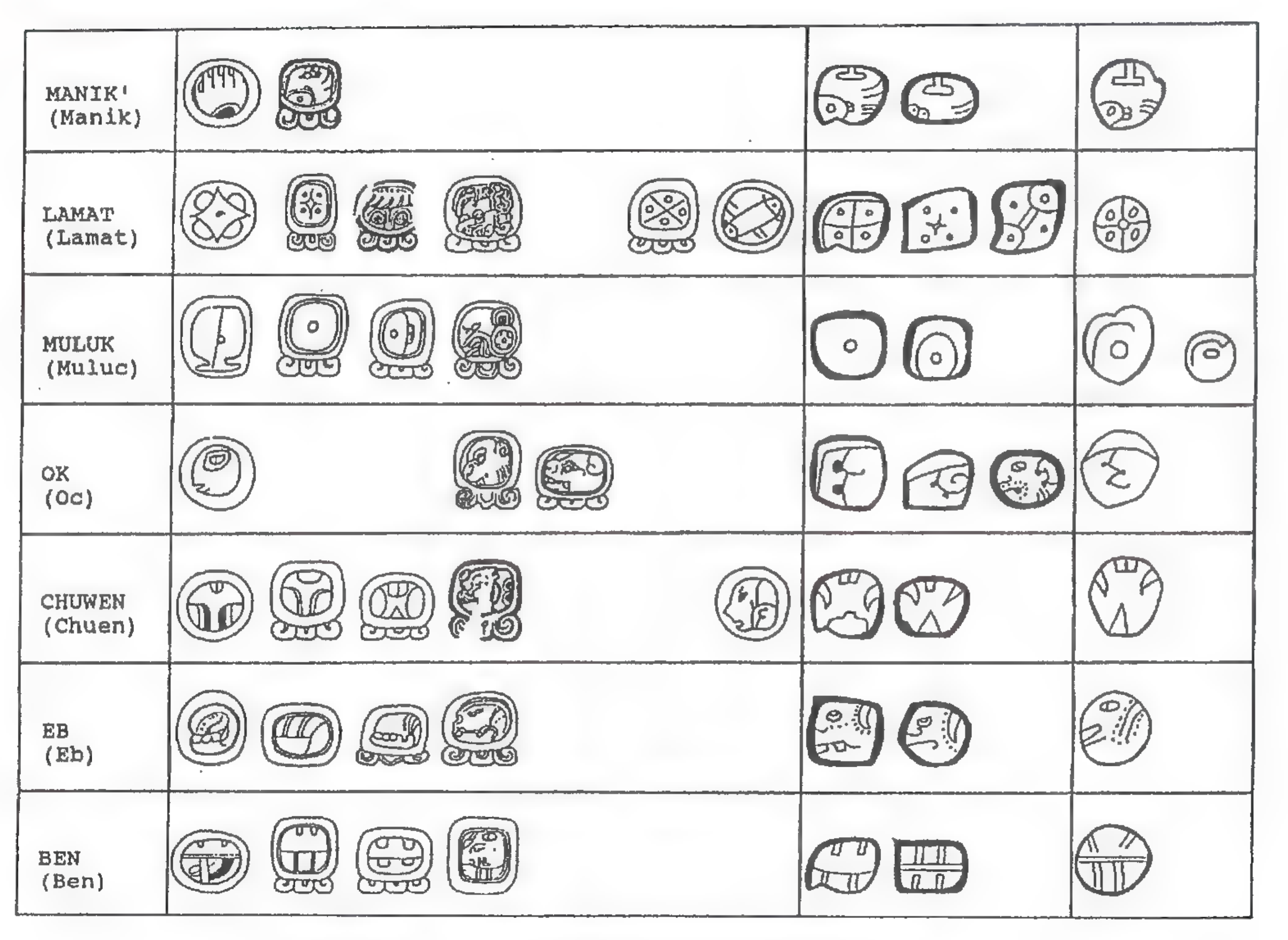
MAYA DATES: CHARTS OF DAYS, MONTHS AND NUMBERS
BY PETER MATHEWS

PERIOD	"GEOMETRIC" FORMS	HEAD VARIANTS	CODICES
K'IN (kin)			
WINAL (uinal)			
TUN (tun)			
K'ATUN (katun)			
BAK'TUN ("baktun")			
PIKTUN ("pictun")			
KALABTUN ("calabtun")			
K'INCHILTUN ("kinchiltun")			

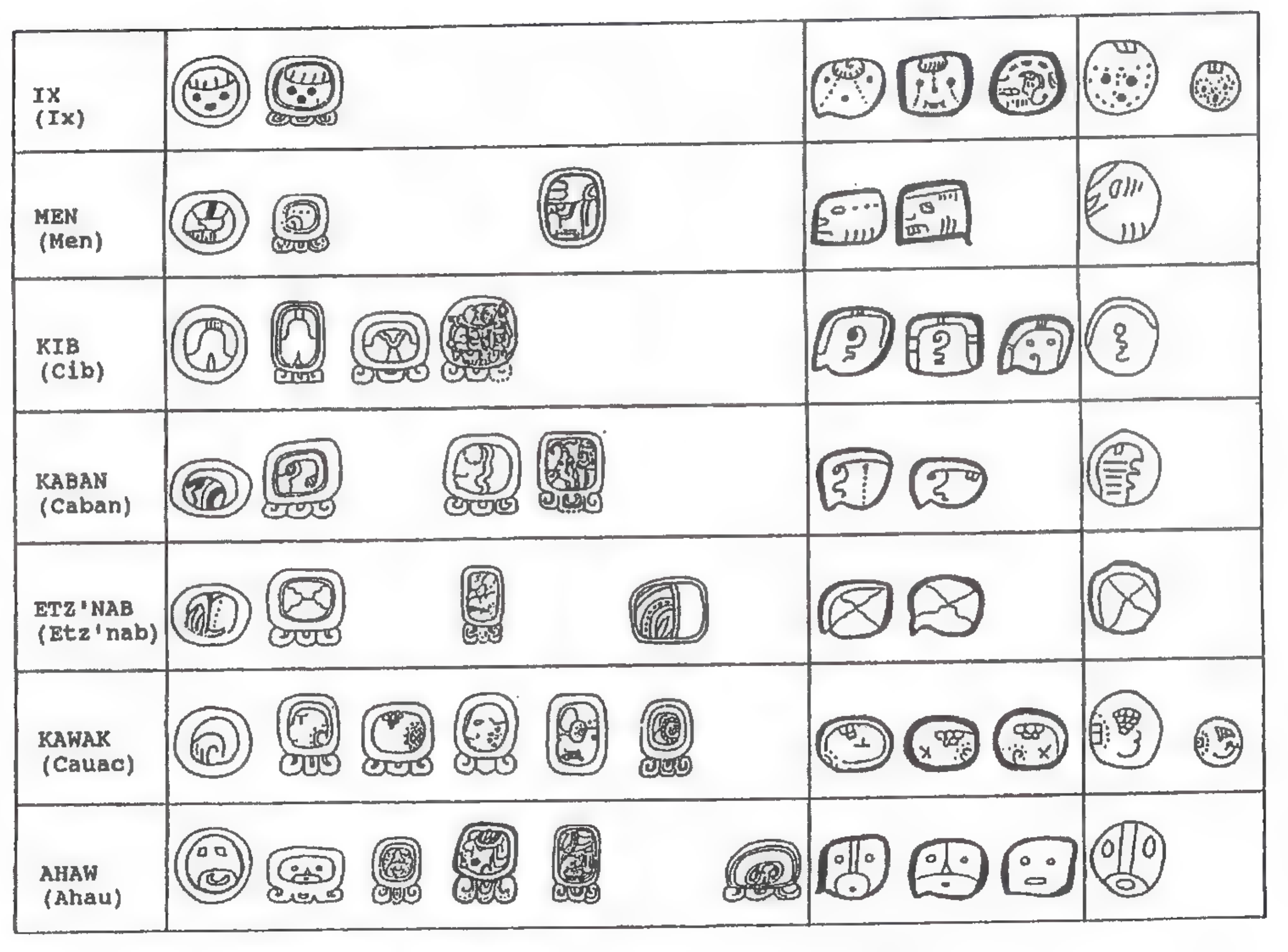
Maya dates: the Period glyphs.

DAY	MONUMENTS	CODICES	LANDA
IMIX (Imix)			
IK' (Ik)			
AK'BAL (Akbal)			
K'AN (Kan)			
CHIKCHAN (Chicchan)			
KIMI (Cimi)			

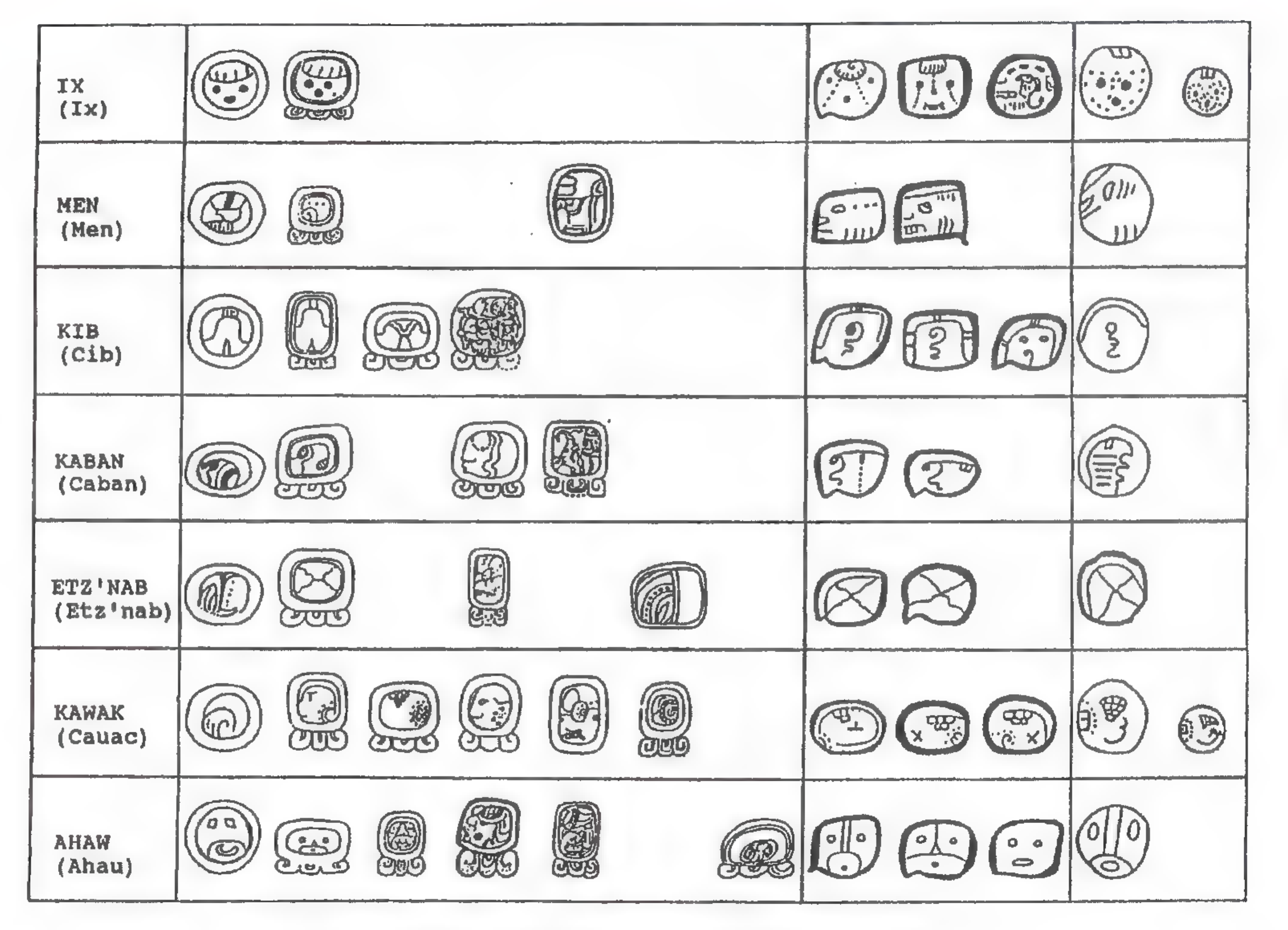
Maya dates: the Day names, Imix through Kimi



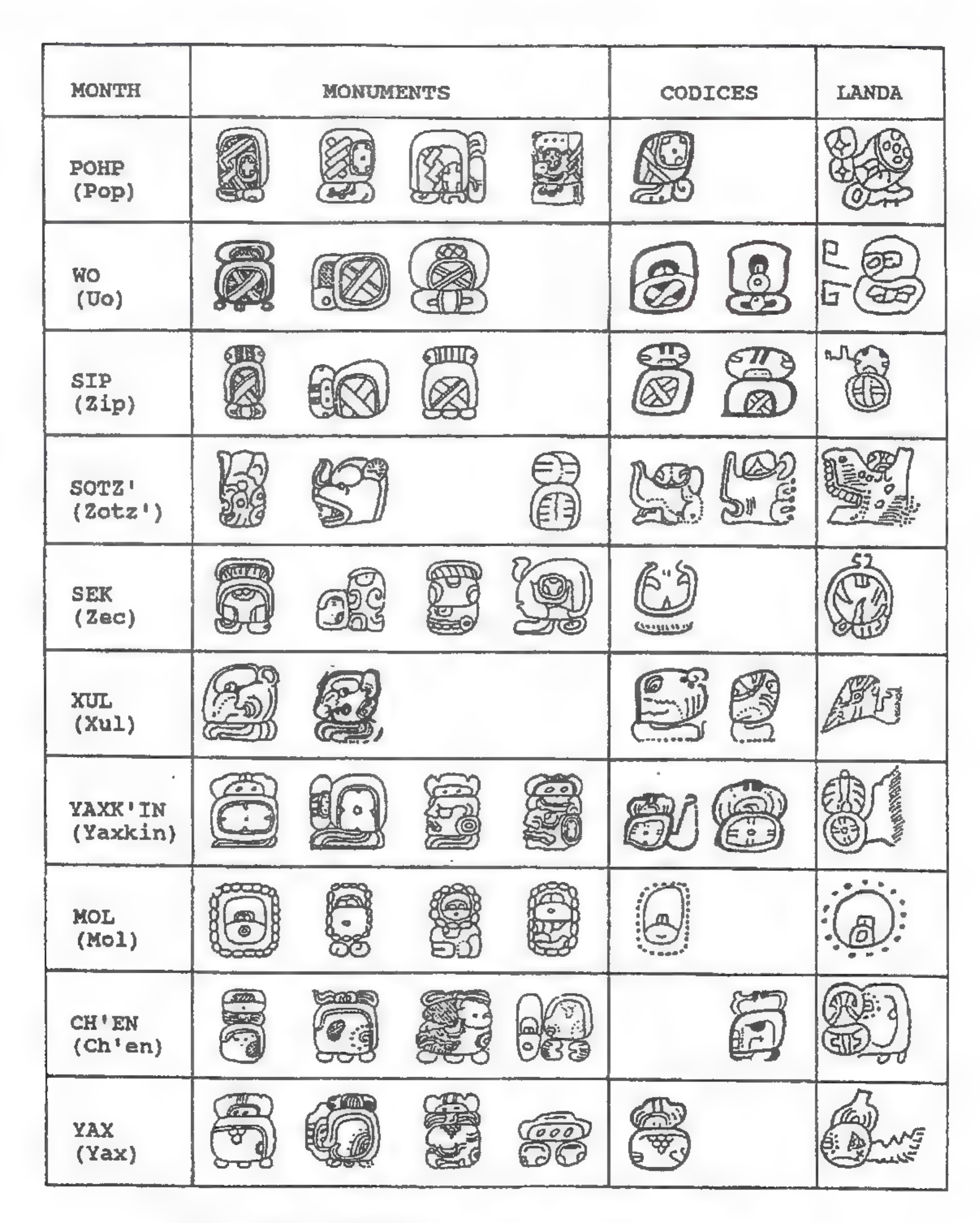
Maya dates: the Day names, Manik' through Ben



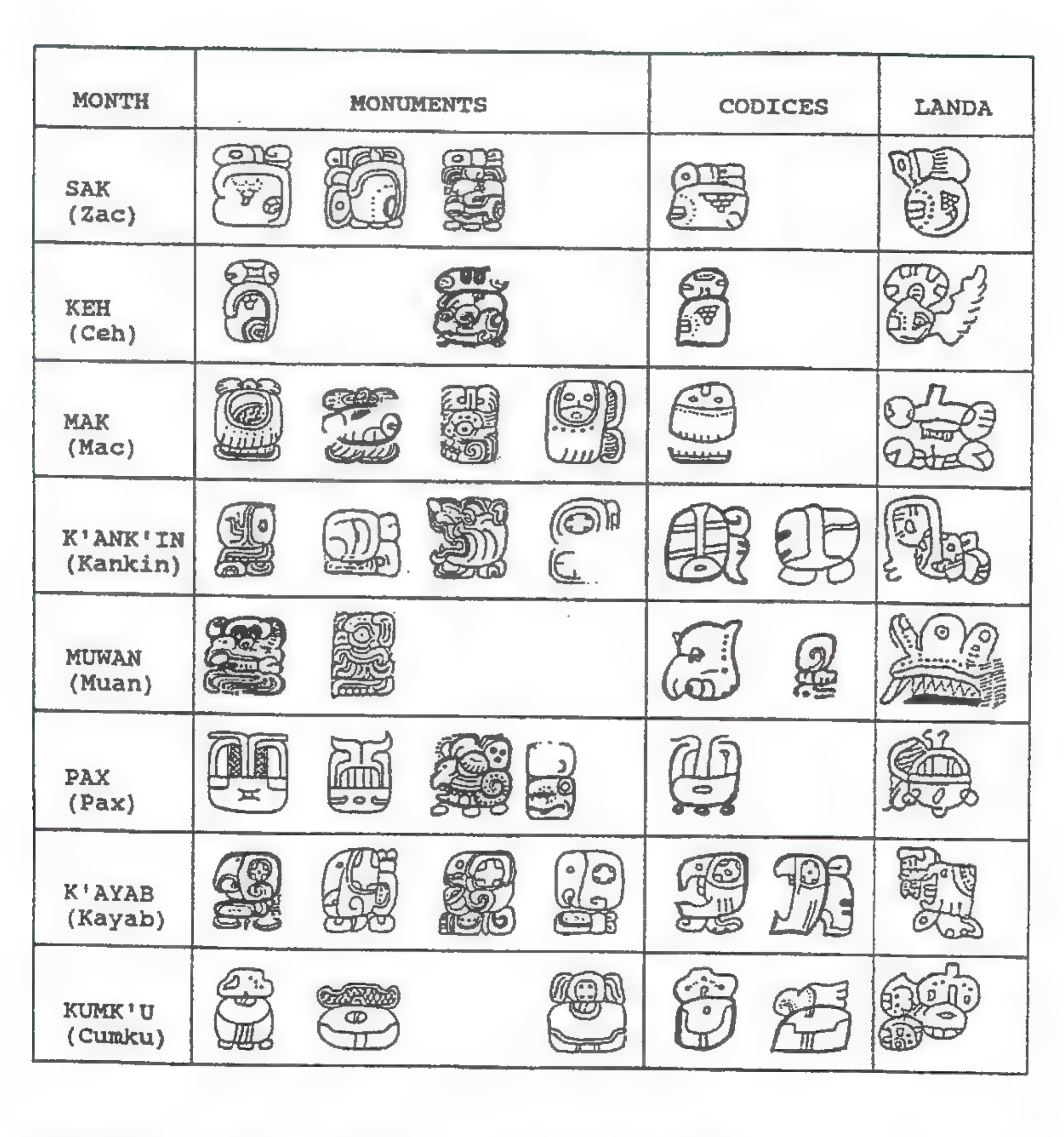
Maya dates: the Day names, Ix through Ahaw



Maya dates: the Day names, Ix through Ahaw



Maya dates: the Month names, Pohp through Yax.



MONTH	MONUMENTS	CODICES	LANDA
SAK (Zac)			
KEH (Ceh)			
MAK (Mac)			
K'ANK'IN (Kankin)			
MUWAN (Muan)			
PAX (Pax)			
K'AYAB (Kayab)			
KUMK'U (Cumku)			

wayeb (uayeb)			

Maya dates: the Month names, Sak through Kumk'u, and wayeb.

NUMBER	BAR AND DOT	HEAD VARIANTS - MONUMENTS	CODICES	OTHER
0				
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

Maya dates: the Numbers, 0 through 10.

NUMBER	BAR AND DOT	HEAD VARIANTS - MONUMENTS	CODICES	OTHER
11				
12				
13				
14				
15				
16				
17				
18				
19				
20 / "completion"				
other				

Maya dates: the Numbers, 11 through 20.

